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PRACTICAL CYCLOPÆDIA

OR

HOME BOOK OF USEFUL KNOWLEDGE.

A

COMPLETE FAMILY GUIDE TO SUCCESS IN LIFE,

CONTRIBUTING TO

HEALTH, WEALTH, WISDOM AND HAPPINESS

CONTAINING THE EXPERIENCE OF THOSE AMONG

THE WISEST, BEST AND MOST SUCCESSFUL MEN AND WOMEN

OF EVERY PROFESSION AND PURSUIT.

ON SUBJECTS ADAPTED TO THE WANTS AND NECESSITIES OF ALL
PERSONS, OLD AND YOUNG, MALE AND FEMALE.

COLLECTED AND ARRANGED BY

A. J. CAMPBELL.

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PRACTICAL CYCLOPÆDIA.

THE FAMILY.

THE oldest institution in the world is the family. It is the parent of all other human associations. States, empires, are its offspring, deriving their material and their character from it. We look in vain for a parallel institution. It creates its own subjects, and trains them not only to be good members of the domestic organization, but good citizens of the State, and what is of striking note, the same process of training which produces the obedient child, also produces the exemplary citizen. The dispositions and principles which are found to be necessary for family happiness and prosperity, are precisely those which, carried out into habitual life in societies, states, churches, &c., are the guaranties of prosperity and happiness there. The very same lesson of the mother to the child on her knees, which teaches him to be kind, patient, forbearing, forgiving towards his brothers and sisters, and respectful and obedient to his parents, is the lesson which prepares him to act well his part on the wide stage of the world.

Happy is that State whose families enjoy the teachings of truth and the living exemplifications of virtue. Nothing can compensate for the lack of a holy family influence, and no vital damage can befall a nation whose families are daily instilling the principles of a sound morality and a pure religion. There may be dark days in its calendar. Disease may sweep its territory, and evils of various kinds may come; but the substantial prosperity and happiness of such a people follows, as effect follows cause, by the eternal law of the universe.

The family circle is God's blessed ordinance, and is the sweetest, the happiest, and the most hallowed spot on earth. It is the nursery

of affection, of friendship, and of virtue; the place where those ties of natural dependence and help are first formed, which, in their expanded state, unite human society; and according to the manner in which the rights of the family circle are enjoyed, its duties discharged, and its true benefits realized, are the moral character, the stability and the grandeur of the country.

The domestic relations precede, and, in our present existence, are worth more than all other social ties. They give the first throb to the heart, and unseal the deep fountains of its love. Home is the chief school of human virtue. Its responsibilities, joys, sorrows, smiles, tears, hopes, and solitudes form the chief interest of human life.

There is nothing in the world which is so venerable as the character of parents; nothing so intimate and endearing as the relation of husband and wife; nothing so tender as that of children; nothing so lovely as those of brothers and sisters. The little circle is made one by a singular union of the affections. The only fountain in the wilderness of life where man drinks of water totally unmixed with bitterness, is that which gushes for him in the calm and steady recess of domestic life.

The great want in families is justice, reciprocity and forbearance. Family intimacy should never make brother and sister forget to be polite and sympathizing to each other. Those who contract thoughtless and rude habits towards the members of their own family will be rude and thoughtless to the whole world. But let the family be true, tender, and affectionate, and the manners of all uniformly gentle and considerate, and the members of the family thus trained will carry into the world and society the habits of their childhood. They will require in their associates similar qualities; they will not be satisfied without mutual esteem, and the cultivation of the best affections, and their own character will be sustained by that faith in goodness which belongs to a mind exercised in pure and high thoughts.

Habitual politeness is truly a valuable element of family intercourse. A coarse, rude speech is less excusable addressed to a father, mother, brother, or sister, than if used to a stranger, or a simple acquaintance. Some parents think it beneath their dignity to prefix a request with "if you please," or "have the kindness," and then wonder why their children can not be mannerly and polite like others. Let such parents remember that precept is of little use without example. We have known the sons of a poor widow, who, on no account would have permitted themselves to sit down to table with their mother, without first arranging their toilet in the best manner their circumstances

would permit, and never suffer her, no matter what the temptations, to attend church or weekly prayer meeting alone. This consideration extended to the minutest acts of their daily life, and was a most charming thing to see. The mother, it is hardly necessary to say, had carefully practiced towards her children that respect for their feelings and thoughtfulness for their comfort, which she afterwards received from them.

In the home circle nothing is more productive of mischief than small mysteries, the concealment of little things, and the furtive accomplishment of what might better be done openly. Dr. Johnson, in his forcible language, once said, "Nothing ends more fatally than mysteriousness in trifles ; indeed it commonly ends in guilt, for those who begin by concealment of innocent things, will soon have something to hide which they dare not bring to light."

The faculty for concealment—or as the phrenologists term it, "secretiveness"—is a dangerous gift. Openness and candor are delightful in a household, giving all the members a pleasant participation in each other's happiness. When we discover that a friend has deceived or only half trusted us, we regard him ever after with suspicion, and it requires a very long time for him to recover the ground he has lost in our confidence and esteem. Especially is this true in the family ; for when we perceive that those abroad know more of the motives of a member of the same house than we do, it seems as if wrong were done which can not be forgotten. Husbands and wives insure domestic discomfort by having outdoor confidants. Coolness and even separations have had their rise in some trifling matters of this sort, when the parties might, by a wiser course, have remained affectionate and inseparable. Children who prefer other friends over their parents are almost sure to be led into error and unhappiness. While under the home roof, the heart should be kept there ; the preliminaries to a future home causing the only exception. And even in such a case, he or she is usually best married whose parents were earliest apprised of the engagement.

Even as the sunbeam is composed of millions of minute rays the home life must be constituted of little tendernesses, kindly looks, sweet laughter, gentle words, loving counsels ; it must not be like the torch-blaze of natural excitement which is easily quenched, but like the serene, chastened light which burns as safely in the dry east wind as in the stillest atmosphere. Let each bear the other's burden the while—let each cultivate the mutual confidence which is a gift capable of increase and improvement—and soon it will be found that kind-

liness will spring up on every side, displacing constitutional unsuitability, want of mutual knowledge, even as we have seen sweet violets and primroses dispelling the gloom of the gray sea-rocks.

There is nothing on earth so beautiful as the household on which Christian love forever smiles, and where religion walks a counselor and a friend. No cloud can darken it, for its twin-stars are centered in the soul. No storms can make it tremble, for it has a heavenly support and a heavenly anchor.

The sweetest type of heaven is home—nay, heaven itself is the home for whose acquisition we are to strive the most strongly. Home, in one form and another, is the great object of life. It stands at the end of every day's labor, and beckons us to its bosom; and life would be cheerless and meaningless did we not discern across the river that divides it from the life beyond, glimpses of the pleasant mansions prepared for us.

Rules to promote harmony in the family :

1. We may be sure that our will is likely to be crossed during the day, so prepare for it.

2. Everybody in the house has an evil nature as well as ourselves, and, therefore, we are not to expect too much.

3. To learn the different temper of each individual.

4. To look upon each member of the family as one for whose soul we are bound to watch, as those that must give account.

5. When any good happens to any one, to rejoice at it.

6. When inclined to give an angry answer, to lift up the heart in prayer.

7. If, from sickness, pain, or infirmity, we feel irritable, to keep a very strict watch over ourselves.

8. To observe when others are suffering, and drop a word of kindness or sympathy suited to them.

9. To watch for little opportunities of pleasing, and to put little annoyances out of the way.

10. To take a cheerful view of everything, and to encourage hope.

11. To speak kindly to the servants, and praise them for little things when you can.

12. In all little pleasures which may occur, to put self last.

13. To try for the "soft answer that turneth away wrath."

14. When we have been pained by an unkind word or deed to ask ourselves, "Have I not done the same, and been forgiven?"

15. In conversation, not to exalt ourselves, but to bring others forward.

16. To be very gentle with the younger ones, and treat them with respect.

17. Never to judge one another, but attribute a good motive when you can.

HOME.

ONE of the brightest pages in the annals of our race, is that which is connected with the love of home. Home is the sacred spot, where the heart has garnered up its choicest earthly treasures; where the character is chiefly formed; where the natural affections are cherished and fostered; where the mind begins to expand; where those habits are formed that assure to industry its appropriate rewards. May we cherish them in ourselves and foster them in our children. In the formation of a proper virtuous character, the influence of home is most important, as well as in the production of the highest happiness. At home, the natural affections receive their culture; at home, the young heart finds something to love, and something to reciprocate that love. The expressions of kindness and affection, made by a father, a mother, a brother, or a sister, call into active service similar feelings in him to whom they are addressed; while the intensity of such feelings is not dissipated by the number or multiplicity of its objects; nor chilled by the indifference, the neglect of a stranger's actions, or a stranger's inattentions. At home, the filial and fraternal feelings find an atmosphere congenial to their growth; and in our riper years, with what delight we review the scenes of our childhood. How the recollections of them strengthen the feelings nurtured in our youth. The hill, the garden, the tree, the rill, and the rich green grass of the meadows, all increase the ties of attachment to the friends that form the centre of attraction to our little world of home.

How many hallowed associations come thronging upon the mind, as we look back to our childhood's home! The very word stirs the deep fountains of feeling within the breast, and warms even the chilled heart of old age with a glow of unwonted emotion. At the touch of memory's wand, forms long since mingled with the dust—"bright dreams buried in the far dark past," and scenes that have vanished like "fancy's fairy frostwork," start up in all the freshness of life and reality, until we forget the present, and are alive only to the recollection of the past. We see once more the beloved and revered father,

whose counsels and example taught us that wisdom's ways are ways of pleasantness, and who was to us the prototype of all earthly nobleness and excellence. Again, we hear the voice of the tender mother whose unwearied love made the sunshine of our childhood, or share her caresses with the brothers and sisters whose joys and sorrows were identified with our own. For a few brief moments, we throw off the cankering fetters of care, and rejoice in the warmth and brightness of our early youth, ere yet the heart had learned the sad lesson of doubt, or treachery, or decay. But in thus looking back, does no painful remembrance throw its dark shadow over the brilliant hues of memory's picture? Does no whisper of accusing conscience, reminding us of neglect or unkindness toward any member of the now broken domestic circle, disturb the soul as it gazes on the record of the past? Alas—how bitter is the thought, that we might have done far more to contribute to the happiness and improvement of those so dear, if the spirit of Christ had dwelt uniformly in us! That in a thousand instances, our waywardness or thoughtlessness gave an additional pang to the warm hearts that beat only for us, and which are now cold and still in death! But repentance, however deep, is unavailing—no sorrow or remorse, can give us back the golden hours of childhood, or restore to our embraces the loved and lost.

But though the past can never be recalled, it is still in our power so to improve the present, that we can look back upon it, in the evening of life, with gratitude and pleasure. Those who are still sheltered under the wing of parental love, and those who in maturer age are presiding over a home of their own, are alike interested in any suggestions that may tend to make that home what it should be—the sweetest and most attractive spot this side heaven. How delightful to enter a house like that of which the Psalmist speaks—"a tabernacle filled with the voice of rejoicing;" not the vain mirth which exists in connexion with sin, and often conceals an aching heart, but the solid cheerfulness which springs from "peace of conscience, and joy in the Holy Ghost." Here is a united and happy family—friendship comes in to draw more closely the bonds of nature—all the members suffer or enjoy together; every care is divided, every sorrow diminished, and every joy redoubled by communion and sympathy—and in this earthly intercourse a foretaste is enjoyed of that blessedness which awaits the righteous at the right hand of God in heaven. The effects of such domestic happiness on the character and habits of the children of a household, cannot be easily estimated. As they go out into the world, the remembrance of a father's faithful counsels, and a mother's

tender love, will constitute a shield to ward off the fiery darts of temptation, in the hour of severest conflict, these strong cords will draw the inexperienced youth back from the "counsel of the ungodly," the "way of sinners," and the "seat of the scornful."

Whose home is happy? Is it his who is the owner of hundreds of thousands of dollars—whose walls are bright with exquisite pictures, and whose parlors are furnished like a palace? *Perhaps* so; it may be that his is a very happy home; but the wealth, and the pictures, and the costly furniture do not create that happiness. They may, indeed add very much to the enjoyment of the heart which is at peace without them, but such things are not indispensable to a happy home.

But *his* is a happy home, even if it be but in a single humble room, who has dear friends, or at least, one friend, awaiting him, and who loves him so that every effort is made to render it comfortable and pleasant;—who meets him with a glad face, and is true in the very heart's core to him. His is the happy home who carries to it an unselfish and affectionate disposition, and a temper sweetened and made gentle by the discipline of life. There may be no picture on the walls, no carpet on the floor, and the furniture may be scanty indeed,—it matters not—if love and peace are there, the home of the man is happy. Love is the basis of all true joy and pleasure. Selfishness is the bane of life—the darkener and destroyer of home. Why will not men believe it? Why, at least, will not the poor believe it? How superlatively foolish in those who have nothing else there, to cast out love and loving kindness from their homes. If the rich man who has his portion in this world can afford to do this, the poor certainly cannot.

There is much more misery thrown into the cup of life by domestic unkindness than we might at first suppose. In thinking of the evils endured by society from the malevolent passions of individuals, we are apt to enumerate only the more dreadful instances of crime; but what are the few murders which unhappily pollute the soil of this Christian land—what, we ask, is the suffering they occasion—what their demoralizing tendency, when compared with the daily effusions of ill-humor which sadden, may we not fear, many thousand homes?

We believe that an incalculably greater number are hurried to the grave by habitual unkindness than by sudden violence; the slow poison of churlishness and neglect is, of all poisons, the most destructive. If this is true, we want a new definition for the most flagrant of all

crimes ; a definition which shall leave out the element of time, and call those actions the same, equally censured by the righteous government of Heaven, which proceed from the same motives, and lead to the same result, whether they be done in a moment, or spread out through a series of years. Habitual unkindness is demoralizing, as well as cruel. Whenever it fails to break the heart, it hardens it. To take a familiar illustration : a wife who is never addressed by her husband in tones of kindness, must cease to love him, if she wishes to be happy. It is her only alternative. Thanks to the nobility of her nature, she does not always take it. No ; for years she battles with cruelty, and still presses with affection the hand which smites her ; but it is fearfully at her own expense. Such endurance preys upon her health, and hastens her exit to the asylum of the grave.

Let home be the nursery of truth, of refinement, of simplicity, and of taste. Study to make it attractive to your children by every means in your power, and lose no opportunity of improving their minds and cultivating their home affections. Let system and order, industry and study, taste and refinement, be cultivated at home, and comfort, harmony, and peace will reign within your dwelling, however humble. Do your children love music, or drawing, or flowers ? Encourage their taste to the utmost of your ability. Indeed, where the love of music pervades a family, and is judiciously cultivated, it is an important aid in the training of children ; for the child whose soul is touched with melody easily yields to the voice of affection, and seldom requires severity. More than this, the harsh tones of the father's voice, as he commands, and the cutting tones of the mother as she forbids, become milder and more persuasive, if accustomed to join with their children in these recreations, and thus both parents and children are mutually refined and elevated. Let me add that I cannot conceive of any purer enjoyment than is felt by the head of a family, as wife and children gather in about him, and pour forth their sweet voices in songs of praise at the morning sacrifice and evening oblation. If the father has money to spare, I do not doubt that he might make a good investment in a piano, a melodeon, or some other instrument to accompany the voices of his wife and children, provided always that practice on these instruments be not allowed to interfere with the practice of the kneading-trough, the wash board, or with any other duty that a true woman, be she daughter, sister, wife, or mother, ought to understand. These duties and these pleasures are in no degree incompatible with each other. Whatever tends to

develop the intellect, to refine the taste, and purify the affections, may find a fitting place in every house.

The loveliest spot on earth is, or should be, home. Man loves the green sunny spots of earth. A tradition seems to lurk in the memory even of the dweller amidst bricks and mortar which inclines his soul with an undefined longing towards Nature arrayed in her undorned simplicity. There is a charm about the idea of the greenwood shade, and a couch of velvet grass, which fascinates the man in his childhood, and grows with him, as years increase, into absolute fondness; as if the capacity for the original nomade existence he enjoyed was destined by the unalterable laws of his constitution never to be eradicated. Hence, the flowers we see tended with so much care in the squalid districts of our large cities, and the arid patches, with plants pining in the shade, cultivated with an assiduity which apologizes for many a grave error. But of all the places which Providence, by the instrumentality of an advanced degree of civilization, has created for the comfort of man, is a home.

Then beautify your premises. Every person who owns a foot of earth or has the lease of a southern wall, whereon to let a vine creep up, and lets May or June go by without improving the opportunity of doing something for their beautification, should be considered remiss in a very important duty. No matter if you don't own the house and yard you occupy, still plant flowers and vines and shrubbery for your own comfort and your own heart's sake.

Let the flowers look upward in every place,
Through this beautiful world of ours;
For dear as the smile of an old friend's face,
Is the smile of the bright, sweet flowers.

I would be glad to see more parents understand that when they spend money judiciously to improve and adorn the house, and the ground around it, they are in effect paying their children a premium to stay at home as much as possible and enjoy it; but when they spend money unnecessarily in fine clothes and jewels for their children, they are paying them a premium to spend their time away from home—that is, in those places where they can attract the most attention and make the most display.

Six things, says Hamilton, are requisite to create a happy home. Integrity must be the architect, and tidiness the upholsterer. It must be warmed by affection, and lighted up with cheerfulness, and industry must be the ventilator, renewing the atmosphere, and bringing

in fresh salubrity day by day; while over all, as a protecting glory and canopy, nothing will suffice except the blessing of God.

KINDNESS.

A WORD of kindness is a seed which, when dropped, by chance springs up a flower. A kind word and pleasant voice are gifts easy to give; be liberal with them; they are worth more than money. "If a word or two will render a man happy," said a Frenchman, "he must be a wretch indeed, who will not give it. It is like lighting another man's candle with your own, which loses none of its brilliancy by what the other gains." If all men acted upon that principle the world would be much happier than it is.

Kindness makes sunshine wherever it goes; it finds its way into hidden chambers of the heart, and brings forth golden treasures. Harshness, on the contrary, seals them up forever. Kindness makes the mother's lullaby sweeter than the song of the lark, the care-laden brow of the father and man of business less severe in their expression. Kindness is the real law of life, the link that connects earth with heaven, the true philosopher's stone, for all it touches it turns to virgin gold—the true gold wherewith we purchase contentment, peace and love. Write your name by kindness, love and mercy on the hearts of the people you come in contact with year by year, and you will never be forgotten.

How sweet are the affections of kindness. How balmy the influence of that regard which dwells around the fireside, where virtue lives for its own sake, and fidelity regulates and restrains the thirst for admiration, often a more potent foe to virtue than the fiercest lust. Where distrust and doubt dim not the lustre of purity, and where solicitude, except for the preservation of an unshaken confidence, has no place, and the gleam of suspicion or jealousy never disturb the harmony and tranquility of the scene. Where paternal kindness and freshness and filial affection blossom in all the freshness of eternal spring. It matters not if the world is cold, if we can turn to our own dear circle for the enjoyment of which the heart yearns.

There is nothing like kindness in the world. It is the very principle of love—an emanation of the heart which softens and gladdens, and should be inculcated and encouraged in all our intercourse with our fellow beings. It is impossible to resist continued kindness. We

may in a moment of petulance or passion manifest coldness to the exhibition of good will on the part of a new acquaintance ; but let him persist, let him continue to prove himself really benevolent of heart, generously and kindly disposed, and we will find our stubborn nature giving way, even unconsciously to ourselves. If this be the result of kindness among comparative strangers, how much more certain and delightful will be the exercise of the feelings at home, within the charmed circle of friends and relatives ? Home enjoyments, home affections, home courtesies, cannot be too carefully or steadily cultivated. They form the sunshine of the heart. They bless and sanctify our private circle. They become a source of calm delight to the man of business after a day of toil, they teach the merchant, the trader, the working man, that there is something purer, more precious even, than the gains of industry. They twine themselves round the heart, call forth its best and purest emotions and resources, enable us to be more virtuous, more upright, more Christian, in all our relations of life. We see in the little beings around us the elements of gentleness, of truth, and the beauty of fidelity and religion. A day of toil is robbed of many of its cares, by the thought that in the evening we may return home, and mingle with the family household. There, at least, our experience teaches us, we may find confiding and loving bosoms, those who look up to and lean upon us, and those also to whom we may look for counsel and encouragement.

We say to our friends, one and all, cultivate the home virtues, the household beauties of existence. Endeavor to make the little circle of domestic life a cheerful, an intelligent, a kindly, and a happy one. Whatever may go wrong in the world of business and trade, however arduous may be the struggle for fortune or fame, let nothing mar the purity of reciprocal love, or throw into its harmonious existence the apple of discord.

The house will be kept in turmoil where there is no toleration of each other's lenity shown to failings, no meek submission to injuries, no soft answer to turn away wrath. If you lay a single stick of wood in the grate and apply fire to it, it will go out ; put on another stick, and they will burn ; and half a dozen, and you will have an effective blaze. There are other fires subject to the same condition. If one member of a family gets into a passion, and is left alone, he will cool down, and possibly be ashamed and repent. But oppose temper to temper, let one harsh answer be followed by another, and there will soon be a blaze which will enwrap them all in its burning heat.

The moment a friend, or even a mere acquaintance, is dead, how

surely there starts up before us each instance of unkindness of which we have been guilty towards him. In fact, many and many an act or word which while he was in life did not seem to us to be unkind at all, now "bites back" as if it were a serpent, and shows us what it really was. Alas! 'twas thus we caused to suffer him who now is dust, and yet then we did not pity him nor reproach ourselves.

There is always a bitterness beyond that of death in the dying of a fellow creature to whom we have been unjust or unkind. Some do not yet know this, having never lost any companion by death; but there are few indeed who will not, if they live long, find it out.

Give no pain. Breathe not a sentiment, say not a word, give not the expression of the countenance that will offend another, or send a thrill of pain to his bosom. We are surrounded by sensitive hearts, which a word or look even, might fill to the brim with sorrow. If you are careless of the opinions of others, remember that they are differently constituted from yourself, and never, by word or sign, cast a shadow on a happy heart, or throw aside the smiles of joy that linger on a pleasant countenance.

Deal gently with the stranger. Remember the severed cord of affection, still bleeding, and beware to wound by a thoughtless act, or a careless word. The stranger! he, perchance, has lived in an atmosphere of love as warm as that we breathe. Alone and friendless now, he treasures the images of loved ones far away, and when gentle words and warm kisses are exchanged, we know not how his heart thrills and the hot tear drops start. Speak gently. The impatient word our friends may utter does not wound, so mailed are you in the impenetrable armor of love. We know that it was an inadvertant word that both will forget in a moment after, or, if not, you can bear the censure of one, when so many love you; but keenly, is an unkind remark felt by the lone and friendless one.

Like a clinging vine torn from its support, the stranger's heart begins to twine its tendrils around the first object which is presented to it. Is love so cheap a thing in this world, or have we already so much that we can lightly cast off the instinctive affections thus proffered? Oh, do not! To some souls an atmosphere of love is as necessary as the vital air to the physical system. A person of such a nature may clothe one in imagination with all the attributes of goodness and make his heart's sacrifices at the shrine. Let us not ungratefully and cruelly destroy the illusion by unkindness.

Let the name of stranger be ever sacred, whether it is that of an honored guest at our fire side, or the poor servant girl in our kitchen

—the gray-haired or the young; and when we find ourselves far from friends, and the dear associations of home, and so lonely, may some kind, some angel-hearted being, by sympathizing words and acts, cause our hearts to thrill with unspoken gratitude, and thus we will find again the “bread” long “cast upon the waters.”

Kindness is its own reward. Good and friendly conduct may meet with an unworthy, and an ungrateful return; but the absence of gratitude on the part of the receiver can not destroy the self-approbation which recompenses the giver. And we may scatter the seeds of courtesy and kindness around us at so little expense. Some of them will inevitably fall upon good ground, and grow up into benevolence in the minds of others, and all of them will bear fruit of happiness in the bosom whence they spring. Once blest are all the virtues always; twice blessed sometimes. Every act of kindness done, whether acknowledged or not, opens a well-spring of happiness in the doer's own breast. As there are none so weak that we may venture to injure them with impunity, so there are none so low that they may not at some time be able to repay an obligation. A person always gains more by obliging his inferior, than by disobliging him. To pluck thorns from the bosoms of others is to plant roses in your own.

When you want to manage men, says Henry Ward Beecher, do as bee-keepers do when they want to manage bees. Here are two men that have bees in a hive. One says, “I own these bees, and I am going to divide them, and move them.” He prepares a place for them, and then goes to the hive, thrusts his hands rudely in the midst of them, and very soon he has his bees all over him, and he moves himself very rapidly. That is just as I have seen men attempt to manage men. Another man gets a bowl of sugar and water, and washes his hands all over, and goes with the utmost quietness and serenity and opens the hive, and puts his hand in gently, and the bees find everything sweet, and, he can scoop them up as though they were so much flour, and put them in as many hives as he pleases—if he only takes care to put a queen-bee in each—and they will not sting him or fly away. And people say, “Wonderful! that man has a real magnetic power with bees.” So he has, when he has sugar and water on his hands. Now when you want to manage men, wash your hands with sugar and water.

It is right for us to maintain a thousand courtesies that tend to give pleasure, and to avoid many rudenesses that tend to give pain. Choose things that will please men. Nutgalls are not the only things in the world. There are roses and honeysuckles. Wasps are not the

only things in the world. There is honey as well. Remember, honey catches flies; vinegar never. Good nature, like a bee, collects its honey from every herb. Ill nature, like a spider, sucks poison from the sweetest flowers. It costs men a great deal of trouble to exhibit constant ill-nature, and they don't make anything by it. Why should they be such fools as to work for nothing? "Speak not evil of one another, brethren. A soft answer turneth away wrath; but grievous words stir up anger. A wholesome tongue is a tree of life."

He makes a good market of bad commodities, who with kindness overcomes injuries. To do evil for good, is human corruption; to do good for good is civil retribution; but to do good for evil is Christian perfection.

One of the proverbs of Solomon teaches that a soft answer turneth away wrath. The contrary result of the opposite course of giving "railing for railing," has always proved that the proverb suggests the true policy, and demonstrated the verity of the corresponding doctrine that "like begets like." And who can recall his own experience, without assenting to the correctness of this position?

There is an anecdote of the great American philosopher, Benjamin Franklin, beautifully and instructively in point: in 1736, he was chosen clerk of the General Assembly of Pennsylvania. It was his first appointment to office. Although as free from vain ambition as the most favored of mere mortals, he was evidently proud of the position and desirous of retaining it. When the next election for clerk came round, a certain wealthy as well as intelligent and therefore influential member, made a long speech in opposition to his re-election. As he himself tells us, in his narrative of the events, he did not resent this opposition, however unjust he may have deemed the ground and temper of it. Not he. But he determined on a very different sort of answer—one which, while it should avoid all appearances of servility or a cringing spirit, would, he felt sure, disarm an opposition whose continuance he feared. He had heard that the member referred to had, in his library, a very rare and curious volume. He wrote him a respectful and kindly note asking the favor of its perusal. The book was promptly sent. In about a week, the philosopher returned it with a second note, in which he strongly expressed his sense of obligation for the loan of it. Thereupon his opponent assumed a kindly bearing. His opposition soon ceased, and he became Franklin's warmest friend. So he remained throughout life, and he was always ready to promote him.

Many years since there lived in one of the central counties of New

Jersey, a poor mechanic, eminent for his pious zeal and consistency. He was very much tried by the conduct of a neighbor, who was in the habit of cutting his wood for the week on the Lord's day, and the sound of whose ax continually disturbed the old Christian's meditations. Father H., as he was called, often remonstrated earnestly and kindly with his neighbor, but without any effect. At length he adopted a different course. On Saturday afternoon his neighbor found the old man very busy at his wood pile, and inquired in astonishment, what he was doing. "Why," replied father H., "you will persist in cutting your wood on God's holy day, and it grieves me so much that I mean to do it for you this afternoon, so that you will have no temptation to do it to-morrow." The man was at once overcome, and exclaimed, "No, you shall not, I will do it myself. Nor will you ever after this have reason to complain for chopping wood on the Lord's day." And he was as good as his word. The old man has long since gone to his reward, but this incident lives after him to enforce the divine direction, "Be not overcome of evil, but overcome evil with good."

An anecdote is told of a Quaker, whose pile of kindling wood was constantly depredated upon. He watched for the thief one night, and discovering him to be a near neighbor, carted a load of his well-split *unseasoned* wood to the thief's door the next day; and as he deposited it in a convenient place, quietly remarked to the conscience smitten neighbor, "*Friend, thee must burn part green.*" No more wood was stolen. Sir Walter Scott once had an Irishman working for him, who was a great drunkard, and who often neglected the work that Sir Walter set him to do. One morning, while engaged in his library labor, word was brought him that his man had returned after a two days' spree. Sir Walter dashed his pen down on his desk, and in great anger ordered the son of Erin to be sent to him immediately. Pat entered, like humbleness personified, and Sir Walter poured out the vials of his wrath: "You unthankful dog," said he, "here I have been putting up with your misdoings, and forgiving you from time to time; yet no sooner are you in my good graces than you take advantage of me. But this is the last time, sir; we must part!" "Well," said the gentleman from Ireland, "if we must part, I'm sorry, and hope no ill will happen ye; but may I ask where are you going to?" he had another trial.

What a mighty power there is in kindness. It may be a feminine, but it is one of the regalest qualities of our nature. Woman possesses it in pre-eminence—the African traveler, Park, was wont to say

that among the most savage tribes, women had never failed to treat him kindly.

The traveler Ledyard bears testimony to the kindness and tenderness of women as follows: "I have observed," he says, "that women in all countries are civil, tender, obliging, and humane. I never addressed myself to them, in the language of decency and friendship, without receiving a decent and friendly answer. With man it has often been otherwise. In wandering over the barren plains of inhospitable Denmark; through honest Sweeden and frozen Lapland; rude and churlish Finland; unprincipled Russia, and the wide-spread regions of the wandering Tartar; if hungry, dry, cold, wet, or sick, the women have ever been friendly to me, and uniformly so: and to add to this virtue, (so worthy the appellation of benevolence,) these actions have been performed in so free and kind a manner, that if I was dry, I drank the sweetest draught—and if hungry, ate the coarsest morsel with a double relish."

Kindness is stored away in the heart like rose-leaves in a drawer, to sweeten every object around them. Little drops of rain brighten the meadows, and little acts of kindness brighten the world. I can conceive of nothing more attractive than the heart when filled with the spirit of kindness. Certainly nothing so embellishes human nature as the practice of this virtue; a sentiment so genial and so excellent ought to be emblazoned upon every thought and act of our life. The principle underlies the whole theory of Christianity, and in no other person do we find it more happily exemplified than in the life of our Savior, who, while on earth, *went about doing good*. And how true it is that

"A little word in kindness spoken,
A motion, or a tear,
Has often heal'd the heart that's broken,
And made a friend sincere!"

The benefits resulting from its practice are twofold: it begets while it bestows blessings. This law of compensation we see every day illustrated in the physical as well as in the moral world. When the spring returns to unbind the frozen streams, they leap downward to the sea, imparting life and beauty in their course, and the ocean, ever prompt to duty, sends greeting back to earth the grateful shower. May our lives thus ever flow forth in deeds of love, and under heaven prove a blessing to our race!

Dr. Young says more hearts pine away in secret anguish, for the

want of kindness from those who should be their comforters, than for any other calamity in life.

TO HUSBANDS.

As you stand by your young bride when you are married, so stand by her ever afterwards.

A good wife is the workmanship of a good husband.

I wish every husband would copy into his memorandum book this sentence, from a recently published work:—"Women must be constituted very differently from men. A word said, a line written, and we are happy; omitted, our hearts ache, as if for a great misfortune. Men cannot feel it, or guess at it; if they did, the most careless of them would be slow to wound us so.

The grave hides many a heart which has been stung to death, because one who might after all, have loved it after a certain careless fashion, was deaf, dumb and blind to the truth in the sentence we have just quoted, or if not, was at least restive and impatient with regard to it. Many men, marrying late in life, being accustomed only to take care of themselves, and that in the most erratic, rambling, exciting fashion, eating and drinking, sleeping and waking, whenever their fancy, or good cheer and amusement, questionable or unquestionable, prompted, come at last, when they get tired of this, with their selfish habits fixed as fate to—matrimony. For awhile it is novelty. Shortly, it is strange as irksome, this always being obliged to consider the comfort and happiness of another. To have something always hanging on the arm, which used to swing free, or at most, but twirl a cane. Then they think their duty done if they provide food and clothing, and refrain (possibly) from harsh words. Ah—is it? Listen to that sigh as you close the door. Watch the gradual fading of the eye, the paling of the cheek, not from age—she should be yet young—but that gnawing pain at the heart, born of the settled conviction that the great hungry craving of her soul, as far as you are concerned, must go forever unsatisfied. God help such wives, and keep them from attempting to slake their soul's thirst at poisoned fountains.

Think you, her husband, how little a kind word, a smile, a caress to you, how much to her. If you call these things "childish," and "beneath your notice," then you should never have married. There are

men who should remain forever single. You are one. You have no right to require of a woman her health, strength, time, and devotion, to mock her with this shadowy, unsatisfying return. A new bonnet, a dress, a shawl, a watch, anything, everything but what a true woman's heart must crave—sympathy, appreciation, love. She may be rich in everything else, but if she is poor in these, and is a good woman, she had better die.

There are hard, unloving, cold monstrosities of women (rare exceptions,) who neither require love or know how to give it. We are not speaking of these. That big-hearted, loving, noble men have occasionally been thrown away upon such, does not disprove what we have been saying. But even a man thus situated has greatly the advantage of a woman in a similar position, because, over the needle, a woman may think herself into an insane asylum, while the active outdoor turmoil of business life is at least a sometime reprieve to him.

Do you ask me, "Are there no happy wives?" God be praised yes, and glorious, loveable husbands, too, who know how to treat a woman, and would have her neither fool nor drudge. Almost every wife would be a good and happy wife were she only loved enough. Let husbands, present and prospective, think of this.

Show love for your wife and your admiration of her, not in nonsensical compliment; not in picking up her handkerchief, or her glove, or in carrying her fan; not, though you have the means, in hanging trinkets and baubles upon her; not in making yourself a fool by winking at, and seeming pleased with her foibles or follies or faults; but show them by acts of real goodness toward her; prove, by unequivocal deeds, the high value you set on her health, and life, and peace of mind; let your praise of her go to the full extent of her deserts, but let it be consistent with truth and with sense, and such as to convince her of your sincerity. He who is the flatterer of his wife only prepares her ears for the hyperbolical stuff of others. The kindest appellation that her Christian name affords is the best you can use, especially before faces. An everlasting "My dear" is but a sorry compensation for a want of that sort of love that makes the husband cheerfully toil by day, break his rest by night, endure all sorts of hardships, if the life or health of his wife demand it. Let your deeds, and not your words, carry to her heart a daily and hourly confirmation of the fact, that you value her health, and life, and happiness beyond all other things in the world; and let this be manifest to her, particularly at those times when life is always more or less in danger.

Walking the other day with a valued friend who had been confined

a week or two by sickness to his room, he remarked that a husband might learn a good lesson by being confined occasionally to his house, by having an opportunity of witnessing the cares and never-ending toils of his wife, whose burden and duties and patient endurance he might never have otherwise understood. There is a great deal in this thought. Men, especially young men, are called by their business during the day mostly away from home, returning only at the hours for meals, and as they then see nearly the same routine of duty, they begin to think that it is their own lot to perform all the drudgery, and to be exercised with all the weight of care and responsibility. But such a man has a very wrong view of the case; he needs an opportunity for more extended observation, and it is perhaps for this very reason that a kind Providence arrests him by sickness, that he may learn in pain what he would fail to observe in health. The fact is, men often lose their interest in their homes by the neglect to make their homes interesting and pleasant. It should never be forgotten that the wife has her rights—as sacred after marriage as before—and a good husband's devotion to his wife after marriage, will concede to her quite as much attention as his gallantry did before. If it is otherwise, he most generally is at fault.

It not unfrequently happens that married men, after having been away from home the live-long day, during which the wife has toiled at her duties, go at evening again to some place of amusement and leave her to toil on alone, uncheered and unhappy. How often it happens that her kindest offices pass unobserved and unrewarded even by a smile, and her best efforts are condemned by the fault-finding husband. How often it happens, even when the evening is spent at home, that it is employed in silent reading, or some other way that does not recognize the wife's right to share in the enjoyment even of the fireside.

Look, ye husbands, a moment, and remember what your wife was when you took her, not from compulsion, but from your own choice—a choice based, probably, on what you then considered her superiority to all others. She was young, perhaps the idol of a happy home; she was gay and blithe as the lark, and the brothers and sisters at her father's fireside cherished her as an object of endearment. Yet she left all to join her destiny with yours; to make your home happy, and and do all that woman's love could prompt and woman's ingenuity devise, to meet your wishes, to lighten the burdens which might press upon you in your pilgrimage. She, of course, had her expectations too. She could not entertain feelings which promise so much, with-

out forming some idea of reciprocation on your part, and she did expect you would after marriage perform those kind offices of which you were so lavish in the days of betrothment. She became your wife! left her own home for yours; burst asunder, as it were, the bands of love which had bound her to her father's fireside, and sought no other boon than your affections: left, it may be, the care and delicacy of a home of indulgence, and now what must be her feelings, if she gradually awakes to the consciousness that you love her less than before; that your evenings are spent abroad; that you only come home at all to satisfy the demand of your hunger, and to find a resting place for your head when weary, or a nurse for your sick chamber when diseased?

Why did she leave the bright hearth of her youthful days? Why did you ask her to give up the enjoyments of a happy home? Was it simply to conduce to your own comfort? Or was there some understanding that she was to be made happy in her connection with the man she dared to love?

Nor is it a sufficient answer, that you reply that you give her a home, that you feed and clothe her. You do this for your help; you would do it for any indifferent housekeeper. She is your wife, and unless you attend to her wants, and in some way answer the reasonable expectations you raised by your attentions before marriage, you need not wonder if she is dejected, and her heart sink into insensibility: but if this be so, think well who is the cause of it. We repeat, very few women make indifferent wives, whose feelings have not met with some outward shock, by the indifference or thoughtlessness of their husbands. It is our candid opinion that a large majority of the instances of domestic misery, the man is the aggressor.

Be patient. You have great trials and perplexities in your business with the world, but do not carry to your home a clouded or contracted brow. Your wife may have many trials, which, though of less magnitude, may have been as hard to bear. A kind, conciliating word, a tender look, will do wonders in chasing from her brow all clouds of gloom. You encounter your difficulties in the open air, fanned by heaven's cool breezes; but your wife is often shut in from these healthful influences, and her health fails, and her spirits lose their elasticity. But Oh! bear with her; she has trials and sorrows to which you are a stranger, but which your tenderness can deprive of all their anguish. Notice kindly her little attentions and efforts to promote your comfort. Do not take them all as a matter of course, and pass them by, at the same time being very sure to observe

any omission of what you may consider due to you. Do not treat her with indifference, if you would not sear and palsy her heart, which, watered by kindness, would, to the latest day of your existence, throb with sincere and constant affection. Sometimes yield your wishes to her. She has preferences as strong as you, and it may be just as trying to yield her choice as to you. Do you find it hard to yield sometimes? Think you it is not difficult for her to give up always? If you never yield to her wishes, there is danger that she will think you are selfish and care only for yourself, and with such feelings she cannot love as she might. Again, show yourself *manly*, so that your wife can look up to you and feel that you will act nobly, and that she can confide in your judgment *as a man*.

Talk to your wife freely about your affairs. Let her understand exactly your condition. Tell her of your difficulties, of your embarrassments, and of your plans for extricating yourself from the entanglements in which you are involved. My word for it, you will get help in nine cases out of ten. Women have quick perceptions. They reach conclusions by a nearer way than reasoning, and get at the solution of a difficult question long before your slow moving thoughts bring you near enough for accurate observation. Tell your wife, then, when in trouble, all about your affairs! Keep nothing back. The better she understands the matter, the clearer will be her perceptions.

VALUE OF A FEMALE ADVISER.

A female adviser is a wondrous advantage to a man, in every pursuit or vocation. In woman there is at once a suitable delicacy of tact, and a plain soundness of judgment, which are rarely combined to an equal degree in man. A woman, if she is really your friend, will have a sensitive regard for your character, honor and repute. She will seldom counsel you to do a shabby thing, for a woman friend always desires to be proud of you. At the same time her constitutional timidity makes her more cautious than your male friend. She therefore seldom counsels you to do an imprudent thing. By female friendships, I mean pure friendships—those in which there is no admixture of the passion of love, except in the married state. A man's best female friend is a wife of good sense and good heart, whom he loves and who loves him. If he have that, he need not seek elsewhere. But supposing the man to be without such a helpmate, fe-

male friendship he must still have, or his intellect will be without a garden, and there will be many an unheeded gap, even in the strongest fence. Better and safer, of course, such friendships, where disparities of years or circumstances put the idea of love out of the question. Middle life has rarely this advantage; youth and old age have. We may have female friendships with those much older and those much younger than ourselves. Moliere's old house-keeper was a great help to his genius; and Montague's philosophy takes both a gentler and loftier character of wisdom from the date in which he finds in Marie de Gourney an adopted daughter; "certainly beloved by me," says the Horace of essayists, "with more than paternal love, and involved in my solicitude and retirement, as one of the best parts of my being." Female friendship, indeed, is to a man "*præsidium et dulce decus*"—bulwark, sweetener, ornament of his existence. To his mental culture it is invaluable.

THE WORTH OF A TRUE WIFE.

THE man that *asks* no love is a monster. The man who *expects* none is a child of despair. There may be hearts so frozen by selfishness, or ossified by pride and egotism, or paralyzed by disappointment, as to be indifferent to affection. But these are icebergs, drifting in darkness on Polar seas; cold, barren, desolate. In them no tree or shrub plants a root, no flower sheds its fragrance there. No melody of living joy is obtained there. God found that it was not good for man to be alone, chiefly because he needed the conscious affection of a female heart to soften the aspirations of his own, and thus give completeness to his being. In the deep, full affection of a wife's heart the husband finds that appreciation and interest that every soul covets. This stimulates his enterprise. This makes him brave to peril. This cheers his hard labor. This comforts him under irritation, slander, reproach, in the outside world.

To meet this craving of man, woman is adapted. She is not ambitious of wealth or fame. She shrinks from great changes and great perils. She is not fitted for the great struggles of the forum, the conflicts of arms, or the labors of the field. Her home is her earthly heaven, and she holds a loving heart to cheer him to whom God has given a loftier ambition, a deeper craving of earth's wealth, a stronger arm and a higher courage. Subjected, by the ordinance of God, and

the laws of the land, to abide a sterner will than her own, she is furnished with a wealth of affection which makes her burden of subordination light, and melts and moulds to tenderness the controller of her destiny.

The treasure of a wife's affection, like the grace of God, is given, not bought. Gold is power. It can sweep down forests, raise cities, build roads and deck houses. It can collect troops of flatterers, and inspire awe and fear. But, alas! wealth can never purchase love. Bonaparte essayed the subjugation of Europe, under the influence of a genius almost inspired—an ambition insatiable, and backed by millions of armed men. He almost succeeded in swaying his sceptre from the Straits of Dover to the Mediterranean—from the Bay of Biscay to the sea of Azoff. On many a bloody field his banner floated triumphant. But the greatest conquest was the unbought heart of Josephine—his sweetest and most priceless treasure her outraged but unchanged love. If any man has failed to estimate the affection of a true-hearted wife, he will be likely to mark the value in his loss when the heart that loved him is stilled by death.

In the true wife the husband finds not affection only, but *companionship*—a companionship with which no other can compare. The family relation gives retirement with solitude, and society without the rough intrusion of the world. It plants in the husband's dwelling a friend who can bear his silence without weariness—who can listen to the details of his interests with sympathy—who can appreciate his repetition of events only important as they are embalmed in the heart. Common friends are linked to us by a slender thread. We must retain them by ministering in some way to their interest or their enjoyment. What a luxury it is for a man to feel that in his home there is a true and affectionate being, in whose presence he may throw off restraint without danger to his dignity—he may confide without fear of treachery—and be sick or unfortunate without being abandoned. If, in the outer world, he grows weary of human selfishness, his heart can safely trust in one whose indulgences overlooks his defects.

Nor, in the matter of *personal comfort*, in the thousand things which combine to shed happiness on man's pathway through life, is the wife a less precious gift of God. Who is it that gives care to the neatness, order and tidiness of our dwellings, our halls, our bedchambers? Who is it that consults our tastes and affinities, our repellances, and so regulates our tables, our couches, our apparel, as to minister to our comfort? Who is it that supplies our lack of interest in ordinary things, and sends us out into society prepared to meet the

claims of decency, taste and propriety? Who caters for our appetites, and swelters in heated kitchens for our indulgence, and often unthanked and unblessed, plies the needle the whole evening for our benefit? Who is it that schemes by a rigid economy, to get the most elegance and comfort from the least tax on our income? Who furnishes the ready pin, the napkin, the bandage for our wounds, the cup for our thirst, the friction for our aching head, the medicine for our pains? What angel of mercy is it that watches by our sick pillow, bears all our pains and irritations, and moves with muffled step when we slumber?

The assiduities of a faithful wife are so common, so varied, so cheerful, so unsuspecting, that husbands are likely to regard her kindness as they do the sunlight and dews of heaven—matters of course—to be received without gratitude. But the constancy which makes them feel familiar—to a right constituted mind—deepens the sense of obligation. While the husband safely trusts to the companion of his years for his personal comforts, she has a right to expect that her beneficence shall be appreciated. If not, he will be likely to find her worth in her loss. Her absence or death is to the little world at home like the loss of the glowing sun which protects our earth from eternal darkness and frost.

As a *counselor*, the faithful wife is invaluable. Well might Solomon say, "The heart of her husband doth safely trust in her." It is difficult to find a friend who is so deeply interested in our welfare as to take the trouble to study our perplexities—so conversant with us and our affairs as to understand our wants and dangers—so morally brave as to venture to tell us unwelcome truth—so perfectly disinterested as to assure us that no selfishness prompts her advice—and so persevering as repetitiously to urge that which is for our benefit. A wife is such a friend, and a wise man will often seek her counsel.

And there is something in the ready, instinctive suggestions of an intelligent wife, which no sane husband should ever despise. She does not pause to collect facts, weigh arguments and draw inferences. Her impressive nature which renders her indisposed slowly to reason, is furnished with instinctive perception of the right, which is better than logic.

It is wonderful how often, in nicely-balanced cases, when we appeal to the judgment of a wife, she instantly decides the case for us, and how generally she is *right*. Pilate was embarrassed in the struggle between his sense of justice and his desire of popularity; but his *wife* said at once "Have thou nothing to do with that just man!" Had

he heeded her counsel, Pilate's hands would not have been stained with the blood of the Son of God.

In the matter of *economy*, too—in the watchful guardianship of his income and estate—the husband can well trust the good wife. It is true there are some wives who cannot thus be trusted. Actuated by a foolish vanity for dress, furniture and equipage, and reckless of a husband's toil, anxieties and pecuniary embarrassments, they will sustain a certain style in the present, even if they have to trample on a husband's broken heart and ruined reputation in the future. These are the wives that drive husbands to wild speculation, to frauds, and embezzlement, to debts never to be paid, to lottery-gambling, to desperation and a premature grave.

But we are happy to believe that such cases are few. As a general fact, the principle of justice, economy and thrift is strong in the heart of woman. Her home-destiny qualifies her for a minute regard to the details of domestic economy, and her love for her husband and regard for the welfare of her children disposes her to use wisely and well the earnings entrusted to her control. She is the one that obeys Christ in "gathering up the fragments, that nothing be lost." Hers is no hireling's eye and hand. The husband lays his purse in her lap, assured that the comfort and responsibility of his house and the interests of his property are safe in her keeping.

Let the husband, then, who is thus blessed, appreciate the gift of God. "A prudent wife is from the Lord," and the gift is worthy of the Giver. "Her price is far above rubies;" and we are told, in the word of God, "the heart of her husband doth safely trust in her." There is a peculiarity in this language. Ordinarily, it is the office of divine truth to weaken our confidence in earthly blessings. Thus it is said: "He that trusted in his own heart is a fool." "Trust not in man, whose breath is in his nostrils." "Put not your trust in princes." "Trust not in uncertain riches." Human friendships are treacherous. Wealth is too cold to fill a warm heart. Fame hangs on a breath of air, and comes and goes, rises and falls by the caprices of a crowd. God ordinarily represents earthly things as vanity. But he seems to make an exception in favor of a virtuous woman. Of a true and virtuous wife, he says, "The heart of the husband doth safely trust in her; and while he may trust, let him love, appreciate and meetly cherish her."

TO WIVES.

ABOVE all things there should be no gloom at home. The dark clouds of discontent and shadows of wasting fretfulness should never cross its threshold—throwing their large black shapes like funeral palls, over the happy young spirits gathered there. In the sentiment thus generally stated all agree—but how to prevent such sad visitants to the earthly heaven of the heart, and upon whom rests the responsibility of guarding it against such intrusions, upon these points, there is a wide difference of opinion. After all that may be said about the mutual responsibilities of parents, it cannot be denied that in all that affects the reign of peace and love in the family circle, woman holds and exercises supreme and entire control. A faithful, affectionate wife and mother will make home a heaven, and go far to make every inmate an angel there. If she will she may sit on a throne and be the presiding deity of the household. She wields a power more absolute and more efficient than any and all others combined. The children are her imitators, and the servants are moulded by her influence; even the Husband and Father, prate as he may of his superiority in point of position, inevitably becomes just what the Wife and Mother makes him. Each member of a household receives its cue from the Wife and Mother. The children repeat in themselves the tones of her voice, the expressions of her countenance, and even the movements of her body. The servants almost unconsciously adopt her manner and spirit—and the Husband and Father becomes like her, or falls out of the circle and becomes a stranger in his own house.

The reception that the little song "*What is home without a Mother,*" everywhere meets with, is a testimony swelling up from the heart of humanity, that home is what a Mother makes it. The conceded axiom that Man without Woman, under all the circumstances of life which go to make up his happiness, is "*A World without a Sun,*" attests as plainly, from the depths of the human soul, that Man is, in this respect, what Woman makes him. These reflections were suggested by a little incident in every day life, which, but for the musing fit that was upon me at the time, might have passed unnoticed by me. Walking home with a friend one evening in dreary cold December, our conversation turned upon the effects of a business life in the present day upon the disposition and temper of a man. The night was setting in very cold; the wind blew fitfully, and as it rose and fell at intervals it produced quite a variety of sounds which, in their combination, sug-

gested the idea of a funeral dirge, or some solemn saddening chant. My friend was a man of some thirty-five years experience in life—nearly twenty of which he had been in business. He had not succeeded in accumulating money—but, though his family was somewhat expensive, he had, (with the exception of two or three years in which he had failed in business, owing to circumstances which left his integrity and standing as a merchant unimpaired,) always secured a good living. The effect of the present times upon his business had been of a character that increased its difficulties and made it much more perplexing and harrassing than heretofore.

During the day just past he had been seriously annoyed by contact and contention with several from whom he had been experiencing what he regarded as persecutions and ill will on business accounts altogether. He had borne with many a cruel tone—many cold and even sharp words and one had even alluded to his former difficulties in business. He had come out of the trial without having lost his temper or self-respect, for he had not retorted upon any of them and had borne himself with a becoming dignity and self-possession throughout the whole interview—but in order to do this he had nerved himself up to an energy so desperate, that as he turned away from his store his frame relaxed and his spirits drooped—every step he took seemed to increase his weakness and depression—his limbs ached with very weariness; and his temples throbbed with the pain-beat caused by the mental and physical exertion he had been making. All this came out in our conversation as we wended our way along the streets through which we were passing to his home; and, what seemed to annoy him most, and what, I have no doubt, led him to recite these trials and cares to me, was his total unfitness to meet his family as was his wont, and as he felt it was due to them he should meet them. We reached his place of residence. A soft light from the parlor windows spread its enlivening beams on the red pave before the door, which suddenly brightened as his latch key was heard opening it. A sweet voice fell upon his ear, and its tones were so soft and glad that despite of the sadness that had been weighing down his spirits his face lit up with bright indications that hope and joy had again entered into his bosom and were nestling against his heart.

Our hats and overcoats were hastily removed and as we turned and entered the sunny little parlor, we were met by as smiling and happy a face as woman ever wore. She did not hesitate to give to her husband a cordial and earnest welcome home, even in the presence of a stranger. Every thing about this woman and her house gave evi-

dence that a loved and honored one was expected. The shining hair smoothed over her fair brow—her dress neat and tasteful—the great arm chair drawn up to the fire—the slippers soft and warm, laid upon the stool before the grate. The children (there were four in all, but two only were old enough to wait up until papa came home,) were washed and combed, and dressed with scrupulous neatness and care—and, when the boots were drawn and slippers donned—they came forward and claimed each a place beside the great chair, reaching up in turn for the coveted kiss—while behind and leaning over its side stood the Wife and Mother, with eyes beaming love and joy in every glance. My friend reached up his arms and clasping them about her neck drew her to him and imprinted upon her brow a fond kiss—as she lifted her head from before his face, his eyes met mine gazing upon them with evident delight—“Ah, C——,” said he, “all the trials of this long long day are past and gone! I might have known, if I had only given it a thought, that my gloomy feelings were doomed to have but a short existence. My dear good wife here has learned to govern herself, and her household too, by the principles of the Christian Religion. Come to my home when I will, and how I may, it is always the same—here I am consoled for all my trials—here I cannot be unhappy—here I am sure to find man’s sweetest, best and dearest solace.”

I will not detain my readers with an account of all that passed between us during the remainder of that ever to be remembered evening. Suffice it to say that such were the impressions made upon my mind and heart by this incident, that whenever I have met the lady alluded to, (and we have met frequently since then,) I have experienced more profound deference and respect for her—for her sex, which she adorns—and for her religion which she so nobly vindicates, than I had ever before deemed due to aught on earth. O! faithful wife, what privileges, what powers, what treasures of love and happiness are placed within thy grasp! What rash and important influences may be wielded by thee!

Never let your husband have cause to complain that you are more agreeable abroad than at home. Many an unhappy marriage has been occasioned by neglect in these particulars. Nothing can be more senseless than the conduct of a young woman, who seeks to be admired in general society for her politeness and engaging manners, or skill in music, when, at the same time, she makes no effort to render her home attractive; and yet that home, whether a palace or a cottage, is the very centre of her being, the nucleus around which her affections should revolve.

Beware of entrusting any individual whatever with small annoyances, or misunderstandings between your husband and yourself, if they unhappily occur. Confidants are dangerous persons; and many seek to gain an ascendancy in families by winning the good opinion of young married women. Should any one presume to offer you advice with regard to your husband, or seek to lessen him by insinuations, shun that person as you would a serpent. Many a happy home has been rendered desolate by exciting coolness, or suspicion, or by endeavors to gain importance in an artful and insidious manner.

A woman—a married woman—who permits herself to find fault with her condition in life, and allows herself to be chagrined or feel an emotion of envy toward those who are pecuniarily better situated than herself, has already taken the first false step that may lead her on to ruin and disgrace, and will be the text of future remorse coupled with degradation. Envy and pride go hand in hand. Women will do well to ponder this, and let content make happy homes.

THE FATHER.

A young man stood in the center of a dim chamber, holding in his hands his first-born child. He stood in silence, with his eyes fixed on the tiny creature he held. Tears came into his eyes as he reflected on the utter helplessness of that unknowing being, that "little pilgrim of love, coming none knew whither." "How strange, how wonderful," thought the newly consecrated priest of the household, "that the great God, should entrust to a sinful mortal like me the care and training of one of his human spirits. How awful is the responsibility that has come upon me. I feel that this is not my child alone, but that he is also the child of the Eternal God, and at my hands will his soul be required. Not for my pleasure or for the stay of my old age is this dear infant given, so much as for my instruction in the things of God. I feel this hour that the universal Father has laid his hand on me in a most solemn charge. He bids me to interpret to my child the character of his heavenly Father in such a manner as shall give him a worthy and attractive idea of God. I would rather drop down now, and die this moment, than live to treat my boy in any manner that shall cause his heart to shrink back from God, when, in future years, He shall be presented to his mind in the character of a father. I hold thee, my unconscious child, and over thee I resolve, God help-

ing me, that I will, to the utmost of my power, represent to thy unfolding mind the justice, the wisdom, the mercy, the patience, and love of God, that when thou art told that He is thy 'Father' thou may'st long to hasten to his arms and look upon his face; that thy heart may willingly and gladly yield Him its service and homage.

"Father and Son are the staple figures of the gospel, and never, sweet son, may thine earthly father be so lost to his duty and his love to thee, as to libel, by his own behavior, the paternal character of the Father of us all. Thou art in my power, my babe—thy destiny for weal or wo is in my hands, thy character depends upon my treatment and training of thee, and I know that for all I do to thee I must account to Him who gave thee. Oh! child, *God grant me grace* to be a true father unto thee, or let Him take thee, whilst thou art unspotted, unto himself."

THE MOTHER.

"CAN a mother's love be supplied? No! a thousand times no! By the deep, earnest yearning of my spirit for a mother's love; by the weary, aching void in my heart; by the restless, unsatisfied wanderings of my affections, ever seeking an object on which to rest; by my instinctive discernment of the *true* maternal love from the *false*—as I would discern between a lifeless statue and a breathing man; by the hallowed emotions with which I cherish in the depths of my heart the vision of a grass-grown mound in a quiet graveyard among the mountains; by the reverence, the holy love, the feeling akin to idolatry with which my thoughts hover about an angel form among the seraphs of Heaven—by all these, I answer, no!

Dear reader, have you a mother? Then on your knees remember the Giver of this greatest earthly good, and as you offer to Him the incense of a grateful heart, oh! mingle with the oblation a prayer for those to whose quivering lips is pressed the orphan's bitter chalice."

A mother mourning at her first born's grave, or closing the dying eye of child after child, displays a grief whose very sacredness is sublime. But bitterer, heavier than the death-stroke is the desperation of a son who rushes over a crushed heart into vices which he would hide even from the abandoned and the vile.

In what Christian country can we deny the influence which a mother exerts over the whole life of her children. The roughest and hard-

est wanderer, while he is tossed on the ocean, or while he scorches his feet on the desert sands, recurs in his loneliness and suffering to the smiles which maternal affection shed over his infancy ; the reckless sinner, even in his hardened career, occasionally hears the whisperings of those holy precepts instilled by a virtuous mother, and, although they may, in the fulness of guilt, be neglected, there are many instances of their having so stung the conscience, that they have led to a deep and lasting repentance ; the erring child of either sex will then if a mother yet exists, turn to her for that consolation which the laws of society deny, and in the lasting purity of a mother's love will find the way to Heaven. How cheerfully does a virtuous son labor for a poverty-stricken mother ! How alive is he to her honor and high standing in the world ! And should that mother be deserted—be left in “worse than widowhood,” how proudly does he stand forth her comfort and protector ! Indeed, the more we reflect upon the subject, the more entirely are we convinced, that no influence is so lasting, or of such wide extent, and the more extensively we do feel the necessity of guiding this sacred affection, and perfecting that being from whom it emanates.

“The future character of a child,” said Napoleon, “is always the work of its mother, and he delights in recollecting that to his parent did he owe much of the greatness of a mind, which probably grasped at too much, but which afterwards enabled him to bear years of privation and exile with fortitude and dignity. General Scott in the opening paragraph of his autobiography pays this beautiful tribute to his mother : In my sixth year I lost my father, a gallant lieutenant, captain in the Revolutionary army, and a successful farmer. Happily, my dear mother was spared to me eleven years longer, and if, in my now protracted career, I have achieved anything that my countrymen are likely to honor in the next century, it is from the lessons of that admirable parent that I derived the inspiration. John Randolph never ceased, till his dying day, to remember with unutterable affection the pious care of his mother, in teaching him to kneel at her side, and, with his little hands pressed together, and raised upwards, to repeat, in slow and measured accents, the pattern prayer.

It is said that John Quincy Adams remarked, when fourscore years old, that he had no recollection of ever retiring for the night without repeating the simple lines which his mother taught him when he was a very little child, and which so many mothers besides her, have taught their children.

“Now I lay me down to sleep
I pray the Lord my soul to keep;
If I should die before I wake,
I pray the Lord my soul to take.”

At home and abroad, on the sea and on the land, in the presidential mansion and in his own private dwelling, where ever he laid himself down for rest, he closed not his eyes in sleep till he had repeated these lines. This fact reveals to us the character of the man. He never hesitated to acknowledge his belief in a Supreme Being, and to own his dependance upon Him for guidance and protection. He commenced the day with reading the Scriptures, and closed it with the words of prayer. And he did this through all the scenes of his varied and protracted life.

This fact also reveals to us the greatness of a mother's influence and the permanency of her early instructions. He was favored with one of the best of mothers, and she spared no pains in teaching him his duties both to God and man, and his firm adherence to what he believed to be right, and the fearless advocacy of it, were the fruits of her instruction. And the offering up of that simple prayer at night, for so many years, he traced to the same source. She taught him to pray, taught him this little prayer, and he ceased not to offer it until his life closed.

“My mother,” said Mr. Benton, not long before he died, “asked me not to drink liquor, and I never did. She desired me at another time to avoid gaming, and I never knew a card. She hoped I would not use tobacco, and it never passed my lips.”

I was told to-day the story of a mother on the hills of Vermont, holding by the right hand a son of sixteen years old, mad with the love of the sea. And as she stood by the garden gate one sunny morning, she said: “Edward, they tell me that the great temptation of a seaman's life is drink.” Promise me, before you quit your mother's hand, that you will never drink.” “And,” said he, for he told me the story, “I gave her the promise, and I went the broad globe over—Calcutta, the Mediterranean, San Francisco, the Cape of Good Hope, the North Pole and the South—I saw them all in forty years, and I never saw a glass filled with sparkling liquor that my mother's form, by the garden gate, on the green hill-side of Vermont, did not rise before me; and to-day, at sixty, my lips are innocent of liquor.” Yet that was not half. “For,” said he, “yesterday there came into my counting-room a young man of forty, and asked, ‘Do you know me?’ ‘No.’ ‘Well,’ said he, ‘I was once brought drunk into

your presence on shipboard; you were a passenger; the captain kicked me aside; you took me to your berth and kept me there until I had slept the sleep of intoxication; you then asked me if I had a mother. I said I never knew a word from her lips! You told me of yours at the garden gate, and to day I am master of one of the finest packets in New York, and I came to ask you to call and see me.' "How far that little candle throws its beams! That mother's word on the green hill-side of Vermont!

Not long ago the Rev. Dr. Mills, in one of his powerful appeals to mothers to consecrate their children to the ministry of the Gospel, said: "A youth, after great deliberation, and with the knowledge that his mother desired him to be a clergyman, decided at last to become a lawyer; and soon after his mother inquired of him in a tone of deep and tender interest, 'my son, what have you decided to do?' 'to study law, mother.' She only replied, 'I had hoped otherwise;' and her convulsive sobbing told the depth of her disappointment. 'Do you think,' said he, 'I could go into the law over my mother's tears?'" He reconsidered the case, and has long been an able and efficient clergyman.

Rev. Dr. Leland, of South Carolina, stated recently in the prayer meeting at Saratoga Springs, that of *one hundred* students in the Theological Seminary at Columbia, he had ascertained, by personal inquiry, that *ninety-nine* received their first religious impression from pious mothers. All that Leigh Richmond was, he attributed to the simplicity and propriety with which his mother endeavored to win his attention, and store his memory with religious truths, when yet almost an infant. Oh! if Christian mothers would but wake up to the use of their powers and their influences, a Samuel might arise out of every family, and Leigh Richmonds be numbered by thousands.

Who can look coldly upon a mother? Who, after the unspeakable tenderness and care with which she has fostered him through infancy, guided him through childhood, and deliberated with him through the perplexities of opening manhood, can speak irreverently of a mother? Her claims to the affection of her offspring are founded in nature; and cold must be the heart that can deny them. "Oh!" says Irving, "there is an enduring tenderness in the love of a mother to her son that transcends all other affections of the heart. It is neither to be chilled by selfishness, nor daunted by danger, nor weakened by worthlessness, nor stifled by ingratitude. She will sacrifice every comfort to his convenience; she will surrender every pleasure to his enjoyment; she will glory in his fame, and exult in his prosperity; and

if misfortune overtake him, he will be the dearer to her from misfortune; and if disgrace settle upon his name, she will still love and cherish him in spite of his disgrace; and if all the world beside cast him off, she will be all the world to him."

Alas! how little do we appreciate a mother's tenderness while living. How heedless are we in youth of all her anxieties and kindness? But when she is dead and gone, when the cares and coldness of the world come withering to our hearts, when we experience how hard it is to find true sympathy, how few to love us for ourselves, how few will befriend us in misfortune; then it is, that we think of the mother we have lost.

Over the grave of a friend, of a brother, or a sister, I would plant the primrose, emblematical of youth; but over that of a mother, I would let the green grass shoot up unmolested, for there is something in the simple covering which nature spreads upon the grave, that well becomes the abiding place of decaying age. O, a mother's grave! Earth has some sacred spots, where we feel like loosing shoes from our feet, and treading with reverence; where common words of social converse seem rude, and friendship's hands have lingered in each other; where vows have been plighted, prayers offered, and tears of parting shed. Oh! how thoughts hover around such places, and travel back through unmeasured space to visit them! But of all spots on this green earth none is so sacred as that where rests, waiting the resurrection, those we have once loved and cherished—our brothers, or our children. Hence, in all ages, the better part of mankind have chosen and loved spots of the dead, and on these spots they have loved to wander at eventide. But of all places, even among the charnel-houses of the dead, none is so sacred as a mother's grave. There sleeps the nurse of infancy, the guide of our youth, the counselor of our riper years—our friend when others deserted us; she whose heart was a stranger to every other feeling but love—there she sleeps and we love the very earth for her sake.

TO MOTHERS.

It is said that a certain celebrated artist had already spent two whole years in painting a scene; but being dissatisfied, destroyed the labor of so many months and was making another attempt, when a friend interrogated him as to the cause of his thus spending so much

of his time. His reply was, "*I paint for immortality.*" Every individual now living, is doing work for enterprise; but a *mother*, to whom is committed the training of a mortal immortal, is emphatically *painting for immortality*.

Hers is the hand that is delineating features on a canvass which will retain its characters "far into the other world." It is this consideration that gives its momentous importance to that question, so often asked with such solicitude, by the anxious mother, "what influences among those I can bring to bear upon my child, will be the most lasting and productive of the greatest good?"

Who among the children of men require so much wisdom as the mother of a family! The statesman requires wisdom that he may so advise or direct as to secure the happiness or prosperity of the nation; but should one statesman act unwisely, another may step in and repair the evil, and so his country may be saved from impending ruin. The merchant needs wisdom and skill, and foresight and tact, that he may guide his affairs with discretion; but should his plans be all frustrated, and riches make themselves wings and fly away at one period of his life, he may have them returned at another, so that at the close of his life he may leave his family in ease and comfort. The farmer needs wisdom in cultivating his land and arranging his stock, so as to bring him the best return for his labor and toil; but should he fail one year to realize his hopes, the next may make up the deficiency. The navigator needs wisdom to guide his frail bark over the trackless deep, so that he may escape the rocks and quicksands; and whirlpools which may lie in his way; but should he be unfortunate, and become a wreck, he has a chance of being saved by holding on to the rigging or escaping in his boat, and in this pitiful situation may find timely help from another voyager. But the MOTHER! if SHE makes a mistake in her mighty work, the probability is that it will be fatal. Her little bark which has just been launched upon the ocean of life, will find many rocks and quicksands, and whirlpools in its way; she, *the mother*, is to be the pilot for the most important part of the voyage, and if she fails to guide it aright, dreadful will be the wreck when it dashes over the precipice of time into the abyss of eternity. There will be no kind hand to help, no returning season to repair the injury; the work is done, and done badly; and eternity will echo and re-echo the dreadful tale of a child lost through its mother's neglect!

Napoleon once asked a lady what France needed for the education of her youth, and the short profound reply was, "*Mothers!*"

The first book read, and the last book laid aside by every child, is the conduct of its mother.

1. First give yourself, then your child, to God. It is but giving him his own.
2. Always prefer virtue to wealth—the honor that comes from God to the honor that comes from men. Do this for yourself, do it for your child.
3. Let your whole course be to raise your child to a high standard. Do not sink into childishness yourself.
4. Give not needless commands, but when you command, require prompt obedience.
5. Never indulge a child in cruelty, even to an insect.
6. Cultivate sympathy with your child in all lawful joys and sorrows.
7. Be sure that you never correct a child until you know it deserves correction. Hear it first and fully.
8. The knowledge and fear of the Lord, are the beginning of wisdom.
9. Never mortify the feelings of your child by upbraiding it with dulness; but do not inspire it with self-conceit.
10. Pray with and for your child, often and heartily.
11. Encourage all attempts at self-improvement.
12. Never deceive nor break a promise to a child.

It was a judicious resolution of a father, being asked what he intended to do with his girls, he replied: I intend to apprentice them to their excellent mother, that they may learn the art of improving time, and be fitted to become wives, mothers, and heads of families, and useful members of society.

Young women, and particularly those brought up in luxury and indolence, are too apt to consider domestic concerns beneath their notice. This is a great mistake. Women should from their infancy be accustomed to have the direction of some department in their father's house; they should keep the accounts, learn to purchase the various articles used in housekeeping, and know how each may be employed to most advantage: meanwhile care must be taken that economy degenerate not into avarice, explain the folly of this passion, remind them that it increases with age, that it is very disgraceful, and that a prudent woman should only endeavor by a frugal and diligent life to avoid the shame attached to prodigality and extravagance. It is necessary to curtail all useless expenses in order to be more liberal in acts of benevolence, charity, and friendship. Frequently that which

costs most at first, is ultimately cheapest, and it is a general good management, not a mean parsimony, that is truly profitable. Do not fail to represent the folly of those women, who eagerly save a wax candle, while they suffer themselves to be cheated in objects of importance. Teach your daughters to pay great attention to neatness and regularity, and accustom them not to suffer anything dirty or slatternly about their persons or in their houses. Tell them nothing contributes so much to economy as keeping everything in its proper place: this rule, though apparently trifling, is highly important, and should be strictly observed. When your daughters first begin to attend domestic concerns, let them commit some errors, as it is well to sacrifice something to improvement; point out what they should have done to avoid these inconveniences, and teach them what you have yourself learned by experience. Be not afraid to tell them of similar mistakes you committed while young, for by these means you will inspire them with confidence in themselves, and without which they will never do anything well.

I know some houses, well built and handsomely furnished, where it is not pleasant to be even a visitor. Sharp, angry tones resound through them from morning till night, and the influence is as contagious as measles, and much more to be dreaded in a household. The children catch it and it lasts for life an incurable disease. Where mother sets the example you will scarcely hear a pleasant word among the children in their plays with each other. Yet the discipline of such a family is always weak and irregular. The children expect just so much scolding before they do anything they are bidden, while many a home where the low, firm tone of the mother, or a decided look of her steady eye is law, never think of disobedience, either in or out of her sight. Oh mothers, it is worth a great deal to cultivate that "excellent thing in woman," a low, sweet voice. If you are ever so much tired by the mischievous or willful pranks of the little ones, speak low. It will be a great help to you even to try to be patient and cheerful, if you cannot wholly succeed. Anger makes you wretched, and your children also. Impatient, angry tones never did the heart good, but plenty of evil. Read what Solomon says of them, and remember he wrote with an inspired pen. You cannot have the excuse for them that they lighten your burdens any—they make them only ten times heavier. For your own as well as your children's sake, learn to speak low. They will remember that tone when your head is under the willows. So too, would they remember a harsh and angry voice. Which legacy will you leave to your children?

How many mothers are there in the world who have one manner of speaking at home, and another when out in society? Can there be a more touching rebuke than that uttered by the little girl below? She, like all children, was a close observer of her parent's conduct. A lady who was in the habit of visiting the poor for benevolent purposes, took her little daughter with her. The child saw, heard, and was interested. But there was something which the child could not exactly make out. So on the road home she said: "Mamma, when you are out visiting the poor you always talk about Jesus Christ to them, and you don't talk of him when you are at home."

"Walk in, Mrs. Sloane," said a mother, as she ushered a visitor into the family room, where her three daughters were seated. "It seems an age since you were here. You have quite neglected us. I really felt unhappy about it, and wondered what kept you away so long." And so the lady ran on, enlarging upon her happiness at seeing her friend once more. The lady was pleased with this appreciation of her society, and after a pleasant call of a reasonable length prepared to go. Then followed an urgent request that she would sit longer, succeeded by a pressing invitation to call again. The acquaintance passed on down the street, and the mother turned to the three young ladies, as she resumed the work which had been laid aside for the caller, with the pettish remark, "I wonder how people find so much time to run around the streets and trouble their neighbors." This mother was a professing Christian, and but a short time before had expressed her deep concern to her pastor for the souls of her daughters. "I talk with them, and pray and labor for their conversion, but it all seems to do no good." Alas! could they possibly have confidence in a religion which was thus represented? Would not that mother's insincerity make a deeper impression on their hearts than all her precepts? Remember, mother, there are sharp eyes watching you every hour. "There's a chief among them that takes notes," when you least suspect it. You may sometimes "get on the blind side" of older people, but seldom on that of keen, honest-hearted children. And O what fatal consequences may result from your inconsistency, with your high profession as Christian mothers! When once a child loses faith in mother, one of the great anchor-cables of his life is severed, and fearful indeed may be the shipwreck. Be what you seem, mother, to all the world, if you would have your children believe in your truth. No authority can command their respect for a hypocritical mother. They will in heart despise her character, though a mere natural affection which they share in common with the lower orders of animal life may

bind their hearts to her. Still it is weak as a spider's web, compared with the might of that mother's influence who can command the unsullied love and perfect confidence of her children.

If you wish to cultivate a gossiping, meddling, censorious spirit in your children, be sure when they come home from church, a visit, or any other place where you do not accompany them, to ply them with questions concerning what everybody wore, how everybody looked, and what everybody said and did—and if you find anything in all this to censure, always do it in their hearing. You may rest assured, if you pursue a course of this kind, they will not return to you unladen with intelligence; and, rather than it should be uninteresting, they will by degrees learn to embellish in such a manner as shall not fail to call forth remarks and expressions of wonder from you. You will, by this course, render the spirit of curiosity—which is so early visible in children, and which, if rightly directed, may be made the instrument of enriching and enlarging their minds—a vehicle of mischief, which shall serve only to narrow them.

By the quiet fireside of home, the true mother, in the midst of her children, is sowing, as in vases of earth, the seeds of plants that shall sometime give to Heaven the fragrance of their blossoms, and whose fruit will be a rosary of angelic deeds—the noblest offering that she can make through the ever-ascending and ever-expanding souls of her children to her Maker. Every word that she utters goes from heart to heart with a power of which she little dreams. Solemn is the thought, but not more solemn to the Christian mother than the thought that every word that falls from her lips, every expression of her countenance, even in the sheltered walk, and retirement, may leave an indelible impression upon the young souls around her, and form, as it were, the underlying strata of that education which peoples Heaven with celestial beings, and gives to the white brow of the angel, next to the grace of God, its crown of glory.

MANAGEMENT OF CHILDREN.

Bishop Paine, of the Southern Methodist Church said at Alexandria: "Give him the children of a town for five years, and he would take the town." "The child," says Wordsworth, "is father of the man."

The instruction of your children cannot commence too early. Every

mother is capable of teaching her children obedience, humility, cleanliness and propriety of behavior; and it is a delightful circumstance, that the first instruction should thus be communicated by so tender a teacher. It is by combining affectionate gentleness in granting what is right, with judicious refusal of what is improper, that the happiness of children is promoted, and that good and orderly habits are established. If children are early trained to be docile and obedient, the future task of guiding them aright will be comparatively easy.

Do all in your power to teach your children self-government. If a child is passionate, teach him by gentle and patient means, to curb his temper. If he is greedy, cultivate liberality in him. If he is sulky, charm him out of it by encouraging frank, good humor. If he is indolent, accustom him to exertion. If pride makes his obedience reluctant, subdue him by counsel or discipline. In short, give your children a habit of overcoming their besetting sin.

In all your teaching do not forget the most important of lessons.—Teach to love, so that when your eyes are old, and their sense almost extinguished, you may yet find round your sick couch and dying bed no greedy covetous looks, but anxious weeping eyes, which strive to warm your freezing life, and lighten the darkness of your last hour by thanks for their first; teach to love, I repeat; that means—do you love!

The very handling of the nursery is significant, and the petulance, the passion, the gentleness, the tranquility indicated by it, are all reproduced in the child. His soul is a purely receptive nature, and that for a considerable period, without choice or selection. A little farther on, he begins voluntarily to copy everything he sees. Voice, manner, gait, everything which the eye sees, the mimic instinct delights to act over. And thus we have a whole generation of future men receiving from us their very beginnings, and the deepest impulses of their life and immortality. They watch us every moment, in the family, before the hearth, and at the table; and when we are meaning them no good or evil, when we are conscious of exerting no influence over them, they are drawing from us impressions and molds of habit, which, if wrong, no heavenly discipline can wholly remove; or, if right, no bad associations utterly dissipate. Now, it may be doubted, I think, whether, in all the active influence of our lives, we do as much to shape the destiny of our fellow men, as we do in this single article of unconscious influence over children.

Be ever gentle with the children that God has given to you; re-

prove them earnestly, but never in anger. In the forcible language of Scripture "Be not bitter against them." "Yes, they are good children," I once heard a kind parent say, "I talk to them much, but I don't like to beat my children, the world will beat them." It was a beautiful thought, yet there is not one child that comes round your table, hearty as they now look, on whose head, if long spared, the storm will not beat. Adversity may wither them, sickness fade, a cold world frown on them; but amid all, let memory carry them back to a home where the law of kindness reigned, where the mother's reproving eye was moistened with a tear, and a father's frown was more in sorrow than in anger.

Be patient with the little ones. Let neither their slow understanding nor occasional perverseness offend you to provoke the sharp reproof. Remember the world is new to them, and they have no slight task to grasp with their unripened intellect the mass of facts and truths that crowd upon their attention. You are grown to maturity and strength, through years of experience; and it ill becomes you to fret at a child who fails to keep pace with your thought. Teach him patiently as God teaches you "line upon line, precept upon precept, here a little, and there a little." Cheer him on in his conflict of mind, in after years his ripe, rich thought shall rise and call you blessed.

Bide patiently the endless questionings of your children. Do not roughly crush the rising spirit of free inquiry with an impatient word or frown, nor attempt on the contrary, a long instructive reply to every casual question. Seek rather to deepen their curiosity. Convert if possible, the careless question into a profound and earnest inquiry. Let your reply send the little questioner forth, not so much proud of what he has learned, as anxious to know more. Happy, thou, if, in giving your child the molehill of truth he asks for, you can whet his curiosity with a glimpse of the mountain of truth lying beyond; so wilt thou send forth a philosopher, and not a silly pedant into the world.

Bear patiently the childish humors of those little ones. They are but the untutored pleadings of the young spirit for care and cultivation. Irritated into strength, and hardened into habits, they will haunt the whole life like fiends of despair, and make the little ones curse the day they were born; but corrected kindly and patiently, they become elements of happiness and usefulness. Passions are but fires, they may either scorch us with their uncontrolled fury, or may yield us a genial and needful warmth.

Bless your little ones with a patient care of their childhood, and

they will certainly consecrate the glory and grace of their manhood to your service. Sow in their hearts the seeds of a perennial blessedness; its ripened fruit will afford you a perpetual joy. Send your little child to bed happy. Whatever cares press, give it a warm good night kiss as it goes to its pillow. The memory of this in the stormy years which fate may have in store for the little one, will be like Bethlehem's star to the bewildered shepherds.

Harshness and severity used without caution is calculated either to injure the dignity and independent spirit of the child, or produce a morbid obstinacy and perverseness. It is at times necessary to censure and punish; but very much more may be done by encouraging children when they do well. Be, therefore, more careful to express your approbation of good conduct than your disapprobation of bad. Nothing can more discourage a child than a spirit of incessant fault-finding on the part of its parent; and hardly anything can exert a more injurious influence upon the disposition both of the parent and child. There are two great motives influencing human action—hope and fear. Both of these are at times necessary. But who would not prefer to have her child influenced to good conduct by a desire of pleasing rather than by the fear of offending? If a mother never expresses her gratification when her children do well and is always censuring them when she sees anything amiss, they are discouraged and unhappy; their dispositions become hardened and soured by this ceaseless fretting; and last, finding that, whether they do well or ill, they are equally found fault with, they relinquish all efforts to please and become heedless of reproaches.

The day for sternness of family discipline is passed; but the day of thorough respectfulness among its members and a careful propriety will never pass. Play with your children as much as you please, but keep the reins of your authority steadily drawn.

Some dangerous theorists hold that vehemence of passion proves strength of feeling; that people of warm tempers have necessarily warm affections; and that a boy's spirit should not be broken. They never consider that a burst of passion is neither more nor less than a burst of selfishness, and that the individual who does more injury in one hour of anger than he could undo, perhaps in years of willing toil, is likely to make his friends wish that his feelings had only the usual and average strength of their own, and that his spirit had been curbed only by his reason.

The eldest son of President Edwards, congratulating a friend on having a fine family of sons, said to him with much earnestness, "Re-

member there is but one mode of family government. I have brought up and educated fourteen boys, two of whom I brought, or rather suffered to grow up without the rod. One of those was my youngest brother, and the other Aaron Burr, my sister's only son," both of whom had lost their parents in their childhood; "and from both my observation and experience, I tell you, sir, maple sugar government will never answer. Beware how you let the first act of disobedience in your little boys go unnoticed, and unless evidence of repentance be manifest, unpunished." Of all the sermons I ever heard, long or short, this has been the most useful, so far as this world is concerned. It is a solemn lesson, to be prayerfully pondered by all parents and guardians. The Bible lays down four great rules, involving the four great elements of the successful religious training of children—prayer, instruction, example, and restraint. And it is useless to pray for, or with your children, if you do not instruct them; and it will be in vain to instruct them if your example contradicts your teaching; and in vain will be the prayer, the instruction, the example, if, like Eli, when your children do wrong, you "restrain them not."

It is related of the mother of Gen. Schuyler, that she was indulgent, but a firm disciplinarian, and she never allowed her authority to be questioned by her children. The General frequently mentioned an illustrative example that occurred when he was about ten years of age. On one occasion, not satisfied with some food that was set before him at dinner, he refused to eat it, and asked for another dish. His mother, regarding his dislike as whimsical, ordered a servant, to carry the dish away, and nothing else was given him. At supper the same dish was set before him, and it was again refused. He went to bed fasting, and the next morning the same dish was given him for breakfast. All this while his mother had not uttered a word of reproof, nor exhibited the least unkindness of manner. Hunger had subdued his rebellious spirit, and conscience made him penitent. He ate the obnoxious food, cheerfully begged his mother to forgive him for his obstinacy, and resolved never again to defy her authority. This kind of maternal discipline had a powerful effect and was reproduced in the character of the son in an eminent degree.

Says Dr. Edward Lawton: Many people begin the education of their children with an exhibition of toys, marvelous tales, silly romances, and wind up with the circus and theatre. The degrading influences and sorrowful consequences of this mode of education will be illustrated by stating a few facts that passed under my own observation.

So far as my memory goes, about thirty boys educated in this way, i. e., in contempt of all useful knowledge and occupation have spent their days in reading novels, the lives and confessions of pirates and murderers, &c., and their nights in the streets, dram shops, gambling houses, circus and theatre; at the age of forty-five, one had been hung for murder, one for robbing the mail and three as pirates; five died in the penitentiary, and seven lived and died as useless vagabonds about the streets; three were useful mechanics, and the fate of the remainder is unknown. Of about forty educated with me by a really moral and scientific teacher under the old foggy Puritanical system of restraint as it is now called by Young America, at the age of fifty-five, one was a member of Congress, one Judge of the Supreme Court, three physicians, five lawyers, fourteen were dead, and the remainder farmers and mechanics, and so far as known, not one of them was ever called before the bar of his country on a criminal charge, and they all had comfortable homes, except two or three, and every one was passably respectable.

Keep your children off the street. By that we mean, do not let them make acquaintance on the sidewalks. If they frequent the public schools, you must establish a sort of verbal quarantine at your own door, and examine the youthful tongue once a day, to see if it has not a secretion of slang upon it.

Fathers and mothers, look out for your boys when the shades of evening have gathered around you! Where are they then? Are they at home, at the pleasant, social fireside, or are they running the streets? Are they gaining a street education? If so, take care, the chances of their ruin are many. There is scarcely anything more destructive to their morals than running about at night. Under cover of darkness they acquire the education of crime; they learn to be rowdyish, if not absolutely vicious; they catch up loose talk, they hear sinful thoughts, they see obscene things, they become reckless and riotous. If you would save them from vulgarity, save them from ruin, save them from prison, see to it that night finds them at home. More than one young man has told the chaplain of the State prison that here was the beginning of his downward course, which finally brought him to the felon's cell. Let parents solemnly ponder this matter, and do what they can to make home attractive for all the children, so attractive that the boys will prefer it to roaming in the streets. There is no place like home in more sense than one—certainly no place like home for boys in the evening.

Don't be afraid of a little fun at home, good people. Don't shut up

your house lest the sun should fade your carpets, and your hearts lest a hearty laugh shake down some of the musty old cobwebs there. If you want to ruin your sons let them think that all mirth and social enjoyment must be left on the threshold without when they come home at night. When once a home is regarded as only a place to eat, drink, and sleep in, the work begins that ends in gambling-houses and reckless dissipation. Young people must have fun and relaxation somewhere; if they do not find it at their own hearthstones it will be sought at other and perhaps less profitable places. Therefore let the fire burn brightly at night and make the homestead delightful with all those little arts that parents so perfectly understand. Don't repress the buoyant spirits of your children; half an hour of merriment round the lamp and firelight of a home blots out the remembrance of many a care and annoyance during the day, and the best safeguard they can take with them into the world is the unseen influences of a bright little domestic sanctum.

Teach your children the elements of Christian Philosophy, the Bible, lessons of Love, and Temperance, and Knowledge, and Virtue, and Faith, and Hope and Charity, and you may turn them out into the world without a doubt of distrust or fear; they will never injure the State.

Teach your child to take care of himself. Educate your children to activity, to enterprise, to fearlessness in what is right, and to cowardice in what is wrong. Educate them to despise suffering that stands in the way of accomplishment of many aims, and count it as a little thing. Make them free by lifting them up into the storms of life, and not by covering them down with soft and downy plush. Give your children fortune without education, and at least one-half of the number will go down to the tomb of oblivion—perhaps to ruin. Give them an education, and they will be a fortune to themselves and their country. It is an inheritance worth more than gold, for it buys true honor; they can never spend or lose it; and through life it will prove a friend, and in death a consolation.

The father who plunges into business so deeply that he has no leisure for domestic duties and pleasures, and whose only intercourse with his children consists in a brief word of authority, or a surly lamentation over their intolerable expensiveness, is equally to be pitied and to be blamed. What right has he to devote to other pursuits the time which God has allotted to his children? Nor is it an excuse to say, that he cannot support his family in their present style of living without this effort. I ask, by what right can his family demand to

live in a manner which requires him to neglect his most solemn and important duties? Nor is it an excuse to say that he wishes to leave them a competence. Is he under obligation to leave them that competence which he desires? Is it an advantage to be relieved from the necessity of labor? Besides, is money the only desirable bequest which a father can leave to his children? Surely, well cultivated intellects; hearts sensible to domestic affection; the love of parents and brethren, and sisters; a taste for home pleasures; habits of order, regularity, and industry; hatred of vice and vicious men; and a lively sensibility to the excellence of virtue, are as valuable a legacy as an inheritance of property—simple property, purchased by the loss of every habit which would render that property a blessing.

A gentleman was walking over his farm with a friend, exhibiting his crops, herds of cattle, and flocks of sheep, with all of which he was highly pleased, but with nothing so much as with his splendid sheep. He had never seen such noble specimens, and with great earnestness he asked how he had succeeded in raising such flocks. His simple answer was, "I take care of my lambs, sir." Here was all the secret—he took care of his lambs! Reader—father, mother, teacher—need we make the application.

Training is not merely teaching a child what it ought to do; it is this, and a great deal more. There may be right teaching, which does no good; because, along with it there is a wrong training which does much harm. "Give me some of *that*," said a peevish-looking boy about seven or eight years of age, to his mother, who was seated on the deck of a steamer in which I happened to be, lately. The mother had some eatables in her hand. "Hold your tongue, Peter," replied his mother: "you won't get it." "I want *that*," again demanded Peter, with increased earnestness. "I tell you," said the mother, looking at him, "you shall not get it. Is that not enough for you? Go and play, and be a good boy." "But I want *that*," reiterated Peter, beginning to sulk and look displeased. "What a laddie!" exclaimed the mother. "Have I not told you twenty times never to ask a thing when I say that you are not to get it?" "I want *that*," cried Peter, more violently than ever, bursting into tears. "Here!" said his mother, "take it and be quiet. I am sure I never, in all my life, saw such a bad boy." Alas! poor boy, he had more reason, if he only knew it, to complain of his mother. The same boy, Peter, grows up, probably, to be a selfish and self-willed young man. His mother sees it and suffers from it; but she wonders how such a temper or disposition should show itself in her Peter! and consoles herself with the thought

that, whatever is the cause of so mysterious a dispensation, from no fault in her could it have come, nor "for want of telling."

The eastern proverb which declares that there are no ungrateful children, is nearer the truth than it appears. It is but another version of the Biblical maxim: Train up a child in the way he should go, and when he is old he will not depart from it. The parent who does really train up a child in the way he should go, is the parent who truly *deserves* the gratitude of his child, and he is the only parent who can hope to receive it in full measure. How many parents there are who, after indulging their children's every desire, are sincerely astonished to find them making no return of love and gratitude. Gratitude! For what should they be grateful? For an impaired digestion? For a will uncurbed? For an appetite unregulated? For a heart cold? For a mind empty? For hands unskillful? For a childhood wasted? For the chance of forming a noble character lost? These are poor claims upon the gratitude of a child. Bring up your child so that, at mature age, he has a sound constitution, healthy desires, an honest heart, a well-informed mind, good manners, and a useful calling, and you may rely upon his making you such a rich return of grateful affection as shall a thousand times repay you for the toil and self-denial which such a training costs. No—there are no ungrateful children! It is a hard saying. But is it not true?

A child is never happy from having his own way. Decide for him and he has but one thing to do; set him to please himself, and he is troubled with everything and pleased with nothing.

A spoiled child is an unfortunate victim, who proves the weakness of his parents' judgment much more forcibly than the strength of their affection. It is the just punishment of a weak over-indulgency that, the more we fondle a spoiled child, the more completely we alienate him from us, as an arrow flies the farther from us, the closer we draw it to our bosom.

I think that the management of children should be regarded and conducted from the following stand-point:

All our thoughts, feelings, and action ought to be arbitrarily ruled by *wisdom*. Only when this master bears the scepter can we be good and harmonious beings. The child is not yet unfolded—that is, wisdom has not yet appeared in the center of its soul——therefore it *must* be governed by this divine sovereign. How can this be accomplished? Having no wisdom yet of its own, the child must be guided by wisdom from abroad; and whence can it emanate, if not from pa-

rents and teachers? As we obey and must obey our wisdom, so the child must absolutely obey the wisdom of its guardians—the parents and teachers.

Parents and teachers! To you I speak—Labor to make yourselves good, and wise, and harmonious—to become whole men and women—for only then are you able to “manage children.” No system of exterior rules, no compilation of superficial prescriptions, can fix the place of this central rule—this law of laws. The child must learn to obey, strictly and unhesitatingly with an innocent and loving faith in the excellency of his guardian; for only thus will the child be able in riper years, to obey *its own* unfolded wisdom. Our education most needs obedience. But how can a child, in many cases show obedience—the treatment being so unwise. Therefore, parent, teacher, first cultivate yourselves, and you will become capable without any rules, to “manage children,” and these, rationally managed, will govern themselves afterwards, according to the holy whispers of wisdom.

If you wish your child to follow in the path of truth and virtue, walk in that way yourself. Few parents like to be told of the faults of a child. The reason is obvious. All faults are either hereditary or educational, and in either case to point a finger at the child is, indirectly, to reprove the parent.

FAMILY WORSHIP.

Not a few Christians who desire above all things that their children should serve the Lord, neglect the best means to secure that result. They pray for them, are careful to have them attend Sabbath school and public worship, and occasionally exhort them to seek the Lord. What more can they do? They can maintain a Christian atmosphere at home. The experience of the Church proves that no influence equals home religion in converting children to Christ. And the most fit and potent expression of family religion is in family worship every day. The reading of the Bible and prayer daily when children are growing up is like the perpetual sunlight, charging and renewing the hearts by gradual, silent progress.

Let parents read and kneel before the Lord, have all the children kneel, from smallest to greatest, and they may acquire a reverence and love for the Savior that will make them feel that a household without prayer is heathen, vulgar, intolerable. They love their pa-

rents and revere their superior wisdom, and when, from early childhood, they see them bow and pray, they come to regard prayer as an essential part of daily life.

But in order to do this the worship must be regular and devout, and the whole family engage in it. Some families are not careful to have their children present when they worship. This is very wrong. The children, above all others, are benefitted, and should always be present. Some do not teach the children to kneel during prayer, and hence they awkwardly sit in their seats while the parents kneel. This is a sad mistake. If they do not kneel they naturally suppose they have no part or lot in the devotions, and soon feel that it is wrong for them to bow before the Lord. We have seen many cases where grown up sons and daughters have never bent the knee before the Lord, and thought it wrong to kneel till they were Christians. In this way they were made more shy and stubborn, and felt that there was an impassable barrier between them and Christ. This feeling is wrong and unnecessary. If family worship had been rightly observed they would have felt that they were very near the Savior, and would easily be inclined to give their hearts to him. Indeed, children thus trained seldom grow to maturity without becoming practical Christians.

EIGHT TO SIXTEEN.

LORD SHAFTESBURY recently stated in a public meeting in London, that from personal observation he had ascertained that of adult male criminals of that city, nearly all had fallen into a course of crime between the ages of eight and sixteen years, and that if a young man lived an honest life up to twenty years of age, there were forty-nine chances in favor and only one against him as to an honorable life thereafter.

This is a fact of singular importance to fathers and mothers, and shows a fearful responsibility. Certainly a parent should secure and exercise absolute control over the child under sixteen. It can not be a difficult matter to do this, except in very rare cases, and if that control is not very wisely and efficiently exercised it must be the parent's fault; it is owing to the parental neglect or remissness. Hence the real source of ninety-nine per cent of the real crime in a country such as England or the United States lies at the door of the parents. It is a fearful reflection. We throw it before the minds of the fathers and

mothers of our land, and there leave it to be thought of in wisdom, remarking only as to the early seeds of bodily disease that they are, in nearly every case, sown between sundown and bedtime, in absence from the family circle, in the supply of spending-money never earned by the spender, opening the doors of confectioneries and soda fountains, of beer, and tobacco, and wine shops, of the circus, the negro minstrel, the restaurant, and dance; then follows the Sunday excursion, the Sunday drive, with the easy transition to the company of those whose ways lead to the gates of social, physical, and moral ruin. From eight to sixteen; in these few years are the destinies of children fixed in forty-nine cases out of fifty—fixed by the parents. Let every father and mother solemnly vow, "By God's help, I'll fix my darling's destiny for good by making home more attractive than the streets."

RULES FOR HOME EDUCATION.

1. From your children's earliest infancy inculcate the necessity of instant obedience.

2. Unite firmness with gentleness. Let your children always understand that you mean exactly what you say.

3. Never promise them anything unless you are sure that you can give them what you promise.

4. If you tell a child to do any thing, show him how to do it, and see that it is done.

5. Always punish your children for *willfully* disobeying you, but never punish when you are angry.

6. Never let them perceive that they can vex you or make you lose your self-command.

7. Never smile at any of their actions of which you do not approve, even though they are somewhat amusing.

8. If they give way to petulance and temper, wait till they are calm, and then gently reason with them on the impropriety of their conduct.

9. Remember that a little present punishment, when the occasion arises, is much more effectual than the threatening of a greater punishment should the fault be renewed.

10. Never give your children anything because they cry for it.

11. On no account allow them to do at one time what you have forbidden under the same circumstances, at another.

12. Teach them that the only sure and easy way to appear good is to be good.

13. Accustom them to make their little recitals the perfect truth.

14. Never allow of talebearing.

15. Teach them that self-denial, not self-indulgence, is the appointed and sure method of securing happiness.

16. Above all things instruct them from the Word of God, taking Jesus for their example in patience, meekness, and love; teaching them to pray morning and evening, and during the day once or oftener, as they grow up, as the only preservative against error, weakness, and sin.

DUTIES OF PARENTS TO SCHOOLS.

1. Parents should send their children to school constantly and seasonable.

2. They should see that they are decently clothed, and cleanly in their persons.

3. They should encourage them to respect and obey the rules and requirements of the school.

4. They should encourage them to be orderly in their deportment, and studiously to regard right.

5. They should encourage them to be studious by manifesting an interest in their lessons.

6. They should have regard for the character of the books their children read, and see that they read understandingly.

7. They should cultivate in their children habits of true politeness and courtesy.

8. Besides visiting the school and co-operating and sympathising with the teacher, they can do much for its improvement and success, by manifesting at all proper places, an interest in its welfare, and a deep solicitude for its reputation; by speaking well of the teacher, and of all his judicious plans; by palliating or excusing his faults or failings, (of which every teacher must be expected to have some,) and by inducing their neighbors to visit the school and take an interest in its exercises; thus showing to their children, in the most convincing manner, that they feel that their present employment is an important one, and that the duties of school are not to be regarded as little consequence.

DUTIES OF PARENTS TO SCHOOL CHILDREN.

Among the most important observances for school children, says Dr. Hall, and which every wise and affectionate parent will never lose sight of, are,

1. See that they have all the sleep that they can take. Every child under ten should be in bed by eight o'clock, summer and winter, so that they may have nearly eleven hours' sleep. Those older should be in bed at nine and be required to rise at six; thus they will have more time for study in the morning, when the brain is rested and acts efficiently, and will also be prevented from injuring their eyes, as very many school children do, by using artificial light.

2. See to it that every child goes to bed with warm, dry feet, and that they sleep warm all night.

3. If you are a human, and not a brute, never allow your child to go to bed with wounded or ruffled feelings from any angry words, or harsh or hasty conduct on your part. Always send them off to school in a happy and affectionate state of mind; and when they return, let them be invariably received with a kindly greeting, and a loving, thankful heart that they are once more returned to you in health and safety. These things are the more necessary as their ambitions, their disappointments, their discouragements, and their troubles, in reference to their school and their lessons, are as important to them as yours to you in the mightier matters of life, and if they find not a balm for all these in the affection, and smiles, and sympathy, of their mothers especially, it is to them a misfortune, and to such mothers a disgrace.

4. By all possible means arrange that your children shall reach school with dry feet and dry clothing; the neglect of this has sent many a sweet child to its early grave, the victim of a mother's carelessness or a teacher's stupidity.

5. School children should eat with great regularity; thrice a day is all-sufficient for those above ten. Frequent eating, and tempting their appetites with sweetmeats and delicacies, has been the groundwork of early and life-long dyspeptics to multitudes.

6. Teach children perseveringly the importance of attending promptly to the calls of nature; and by any and every means bring it about that this shall be done before leaving for school in the morning. To this end arrange that they shall be through with their breakfasts an hour before it is necessary to start for school, even if they have to eat by candle-light. Cases of fatal inflammation of the bladder have often

occurred in consequence of the ignorance or brutality of teachers in this connection.

7th. Embrace every opportunity of impressing the child's mind with the fact that teachers are laboring for their good, and therefore ought to be loved, respected, and obeyed, as their best friends.

CHILDREN.

NEARER to glory they stand than we, in this world and the next! It was a gentle and not unholy fancy that made the Portuguese artist Siquina, in one of his sweet pictures, form of infant faces the floor of heaven, dividing it thus from the fiery vault beneath, with its groups of the lost. For how many women had this image been realized! How many have been saved from despair or sin by the voice and smile of these unconscious little ones! The woman who is a mother dwells in the immediate presence of guardian angels. She will bear on for her children's sake. She will toil for them, *live* for them, which is sometimes harder still. The neglected, miserable, maltreated wife has still one bright spot in her home; in that darkness a watch-light burns; she has her children's love, she will strive for her children. The woman tempted by passion has still one safeguard stronger than all with which you would surround her; she will not leave her children. The angry and outraged man sees in those tiny features a pleading more eloquent than words; her wrath against her husband melts in the sunshine of their eyes.

There is not in this world a more lovable object than a young child—its fair brow unshadowed by care, its clear eye undimmed by tears, its pure heart untainted by passion. Its every word, look and action bespeak its guilelessness. Its smiles—its affectionate endearments—its unstinted confidence—its artless, winning ways, knit to your heart with ties cable strong. Heaven help the childless! Without childhood's ringing laugh and bird-like music, how desolate the household. A child is the brightest ray in the sunshine of a parent's heart.

Give them your sympathies—show them kindness—teach them to love you—to confide in you—and see how, like flowers to the sun, they will open their little hearts to you. "Suffer little children to come unto you, and forbid them not," for there is a blessing in their presence; a charm in their association which refreshes the world-weary heart, and softens the asperities of life.

The man is to be pitied who has no love for children—who frowns upon their sportiveness and rebukes their caresses. We would not carry such a cold turbid heart under our vest for the wealth of the Indies.

Says Douglas Jerrold: "Blessed be the hand that prepares a pleasure for a child, for there is no saying when and where it may again bloom forth. Does not almost everybody remember some kind-hearted man who showed him a kindness in the dulcet days of his childhood? The writer of this recollects himself, at this moment, a bare-footed lad, standing at the wooden fence of a poor little garden in his native village, while with longing eyes he gazed on the flowers which were blooming there quietly in the brightness of a Sabbath morning. The possessor came forth from his little cottage; he was a wood-cutter by trade, and spent the whole week at work in the woods. He had come into the garden to gather flowers to stick in his coat when he went to church. He saw the boy, and breaking off the most beautiful of his carnations—it was streaked with red and white—he gave it to him. Neither the giver or the receiver spoke a word, and with bounding steps the boy ran home. And now here, at a vast distance from that home, after so many events of so many years, the feeling of gratitude which agitated the breast of that boy expresses itself on paper. The carnation has long since faded, but it now blooms afresh.

Children should if possible, be joyous and happy. If childhood does not blossom, manhood will be likely to bear no fruit. Hard be his fate who makes not childhood happy; it is so easy. It does not require wealth, or position, or fame; only a little kindness, and the tact which it inspires. Give a child a chance to love, to play, to exercise his imagination and his affections, and he will be happy. Give him the conditions of health—simple food, air, exercise, and a little variety in his occupations—and he will be happy and expand in happiness. Childhood is like a mirror, catching and reflecting images all around it. Remember that an impious, profane or vulgar thought may operate upon a young heart like a careless spray of water thrown upon polished steel, staining it with rust that no after efforts can efface.

OCCUPATION OF CHILDREN.

The habits of children prove that occupation is a necessity with most of them. They love to be busy, even about nothing, still more to be usefully employed. With some children it is a strongly devel-

oped necessity, and if not turned to good account, will be productive of positive evil, thus verifying the old adage, that "Idleness is the mother of mischief." Children should be encouraged, or if inherently disinclined to it, be disciplined into performing for themselves every little office relative to the toilet which they are capable of performing. They should also keep their own clothes and other possessions in neat order, and fetch for themselves whatever they want; in short, they should learn to be as independent of others as possible, fitting them alike to make a good use of prosperity, and to meet with fortitude any reverse of fortune that may befall them. I know of no rank, however exalted, in which such a system would not prove beneficial.

AN INNOCENT ERROR OF CHILDHOOD.

Make-believe is one of the innocently intended ruses of childhood, but one that often leads to willful deception and falsehood. However it may be with the old, the young should practice no disguises—not even in sport, for that which answers a double, or equivocal purpose in sport, may very likely suggest a rule of action for real contingencies. Of all traits, in the young or old, truth and frankness are the most admirable. They win our confidence and command our respect. We know just where to find their votaries. The kingdom of Heaven could only have been likened to children, because in them is the least make-believe. Their simplicity, faith, trust and sincerity, are fitly made a type of that pure state where there is no shadow nor guile. Let the young believe, and not make-believe. Let them do, and not pretend to do.

Children, beware of make-believe! The habit you put on playfully now may cling to you closer than the fabled poisoned shirt, and torment you when you become powerless to shake it off.

THE ANGEL ON EARTH—A TOUCHING SCENE.

"Come to me, darling; papa's cross to-night," said a young mother, as she extended her arms affectionately to a little girl of three years, who had left her toys and playthings to climb upon her father's knee. The child hazarded a puzzled look at that dark, stern countenance, and without a glance of reassurance, stole softly to his side. Not a word was spoken, and the gloomy man sat sad and sullen, his mind wholly absorbed with the busy world's excitements. Although a husband and a father, he was evidently in no humor to participate in the pleasures of a "home circle." The child, not at all discouraged

by the forbidding look of her parent, crept gently upon his knees, and placing one tiny arm about his neck, the other glided affectionately over the opposite cheek, while her innocent lips pressed gently the troubled brow. In a subdued breath she whispered "*Nellie loves papa so much!*" and she drew her little soft hands caressingly down either side of that care-worn face, until they met beneath the heavily bearded chin. Observe the effect; 'twas electrical; the stern features relaxed, the sullen gloom disappeared, and the whole countenance assumed a lively animated expression. The scene was most touching. Words fail to express the exquisite beauty of such a picture. As the transformed parent drew the little girl to his bosom, and pressed a kiss upon that innocent, upturned face, the finer feelings of his manly nature were in his voice as he said, "No, my child, pa could never be cross with such a lovely daughter to calm the heart the world has tortured into despair."

"Whosoever shall offend one of these little ones that believe in me, it were good for him that a mill-stone were hanged about his neck and he cast into the depths of the sea."

PRECOCIOUS CHILDREN.

Phrenologists, from the days of Gall and Spurzheim, have written much in regard to the premature development and decay of children. In their practice as phrenologists, they found that "forward children," of which foolish parents are usually most proud, are, as a rule, either short-lived, or that, if they come into the full stature of men and women, that they develop less character than those more slow and backward in ripening.

The business of childhood is to grow, to grow bodily, to take on constitution, to lay in a stock of vitality for future use. Many parents seem to suppose the business of childhood to be to get an education, and they lose sight of the more important part, that of getting bodily health, strength, and vigor. Put a young colt into harness or under the saddle when not half grown, and he remains a weak and spiritless animal, if not almost worthless, and dies at the age of a dozen years; whereas, if first permitted to get his growth, to become strong, firm, and vigorous before breaking into service, he will work steadily for twenty years. And so it is with human beings; they must *not* be forced. In a hot-house, plants may be stimulated into flower before their time, but they decay as much *sooner*.

Says a recent writer: A beautiful, fascinating lady, came in yester-

day to arrange for the admission of her son to the Gymnasium. She exhibited her darling with a glow of pride and declared that she never saw such a creature; he never played like other children, but would sit from morning till night with his book. Although he was but eight, he had read everything, and was now going over Josephus for the second time.

In a polite way I warned her against such a course, and assured her if he had not learned to read, it would be far better for him, that, in brief, the chances were very strong that he would turn out a nervous, unhappy, feeble-minded man, but I fear she went away not only unconvinced, but pretty firmly resolved not to come again. Good physical education might perhaps save him, but it is almost sure he will do up his thinking before he is fifteen, and as a man will prove a regular noodle. A man at five may be a fool at fifteen.

Precocity is not genius, though it is often mistaken for it. We not unfrequently see mere children so precocious as to become very prodigies. They shine, for a time, as "bright particular stars" in some sphere or other, and then sink into obscurity, or mediocrity at best—sinking all the lower because of the extraordinary expectations, awakened by their *debut*, never being met in adult years!

The walks of literature are strewn with withered flowers, resulting from precocious culture. And in no department are they found more numerous than that of poetry, where they spring forth exotically, as it were, only to wither beneath the first touch of criticism, and teach the writers, and their ill-advising friends, how sadly they had mistaken their mission.

We always experience a feeling of sadness in beholding a precocious youth. We cannot free our mind from the thought of the great temptations that lie in the pathway of such. To be beautiful, to be gifted, is to be exposed to the flattery, the adulation and the smiles of the unthinking, the unreflecting portion of mankind. Full of peril is the life, the boyhood of such a child. It is to be petted, to be spoiled, and ere the gravity of manhood has settled on the brow—too often—to be lost. We tremble for precocious youth. The pitfalls in their pathway are too many and too dangerous for their safety, they fall like premature fruit, ripening and decaying ere their youth has fairly blossomed.

It is a great misfortune to be a precocious child. Precocity should not be confounded with genius; the one is unnatural, the other only uncommon; the one is pre-matureness of power; the other superior power. The former should be constantly held in check; the latter

may be safely cultivated. In the case of a precocious child one faculty has run away from its fellows, and should be strapped down until those faculties, which should accompany it, can catch up.

Two of the most dangerous evils children can experience is to be born with a gold spoon in the mouth and to be endowed by nature with some remarkable faculty of mind. The first evil may correct itself; the last is almost certain to so strain the childhood as to throw it, wrecked, upon manhood's shore. Our great men and women come not from precocious childhood; our useful ones never do. To be great, or useful, requires a harmonious combination of powers; the existence of one astonishing faculty betrays the presence, commonly, of some corresponding weakness. Where there is a flood in one direction, there must be a drain in another direction. Precocity is an unnatural growth, and unless art can hold nature in check when it takes a "freak," and train it properly to the framework of our physical and mental being, the plant becomes a monstrosity.

Baillet mentions one hundred and sixty-two children endowed with extraordinary talents, among whom few arrived at an advanced age. The two sons of Quintillian, so vaunted by their father, did not reach their tenth year. Hermogenes, who, at the age of fifteen, taught rhetoric to Marcus Aurelius, who triumphed over the most celebrated rhetoricians of Greece, did not die, but at twenty-four lost his faculties, and forgot all he had previously acquired. Pica di Mirandola died at thirty-two; Johannes Secundus at twenty-five, having at the age of fifteen, composed admirable Greek and Latin verses, and become profoundly versed in jurisprudence and letters. Pascal, whose genius developed itself at ten years old, did not attain the third of a century. In 1791, a child was born at Lubeck, named Henry Heinenken, whose precocity was miraculous. At ten months of age he spoke distinctly, at twelve learned the Pentateuch by rote, and at fourteen months was perfectly acquainted with the Old and New Testament. At two years he was as familiar with ancient history as the most erudite authors of antiquity. Sauser and Danville only could compete with him in geographical knowledge. In the ancient and modern languages he was a proficient. This wonderful child was unfortunately carried off in its fourth year.

A boy may be dull and yet have a superior mind. There is all the difference possible between a dull boy and a dunce. The latter can never know much; on the contrary, a dull boy only requires that the instruction given should be slowly communicated, and in greater di-

vision and subdivision. Many a clever boy is ruined by being hurried over subjects more rapidly than he can comprehend.

TO BOYS.

The following affecting narrative purports to have been given by a father to his son, as a warning derived from his own experience of resisting a mother's counsel:

What agony was visible on my mother's face when she saw that all she said and suffered failed to move me! She rose to go home, and I followed her at a distance. She spoke no more till she reached her own door. "It's school time now," she said. "Go, my son, and once more let me beseech you to think upon what I have said." I sha'n't go to school," said I. She looked astonished at my boldness, but replied firmly—"Certainly you will go, Alfred. I command you." "I will not!" said I, in a tone of defiance. "One of two things you must do, Alfred, either go to school this morning, or I will lock you up in your room, and keep you there till you are ready to promise implicit obedience to my wishes in future." "I dare you to do it," said I; "you can't get me up stairs." "Alfred, choose now," said my mother, who laid her hand upon my arm. She trembled violently and was deadly pale. "If you touch me I will kick you," said I in a terrible rage. God knows I knew not what I said. "Will you go, Alfred?" "No!" I replied; but quailed beneath her eye. "Then follow me," said she, and she grasped my arm firmly. I raised my foot—oh, my son hear me!—I raised my foot and kicked her! How my head reels as the torrent of memory rushes over me! I kicked my mother—a feeble woman—my mother! She staggered back a few steps, and leaned against the wall. She did not look at me. I saw her heart beat against her breast. "Oh! Heavenly Father," said she, "forgive him—he knows not what he does!" The gardener just then passed the door, and seeing my mother pale, and almost unable to support herself, he stopped. She beckoned him in. "Take this boy up stairs and lock him in his room," said she, and turned from me. Looking back as she was entering her room, she gave me a look of agony, mingled with the most intense love!—it was the last unutterable pang from a heart that was broken. In a moment I found myself a prisoner in my own room. I thought for a moment I would fling myself from the open window, and dash my brains out, but I

was afraid to do it. I was not penitent. At times my heart was subdued; but my stubborn pride rose in an instant, and bade me not to yield. The pale face of my mother haunted me. I flung myself on the bed, and fell asleep. Just at twilight I heard a footstep approach the door. It was my sister. "What may I tell my mother from you?" she asked. "Nothing," I replied. "Oh, Alfred! for my sake, say that you are sorry, she longs to forgive you." I would not answer. I heard her footsteps slowly retiring, and again I threw myself on the bed, to pass another and fearful night. Another footstep, still slower and feebler than my sister's disturbed me. It was my mother's. "Alfred, my son, shall I come?" she asked. I cannot tell what influence, operating at that moment, made me speak adverse to my feelings. The gentle voice of my mother thrilled me through, melted then the ice of my obdurate heart, and I longed to throw myself on her neck, but I did not. But the words gave the lie to my heart when I said I was not sorry. I heard her withdraw. I heard her groan. I longed to call her back, *but I did not*.

I was awakened from my uneasy slumber by hearing my name called loudly, and my sister stood at my bedside. "Get up and come with me. Mother is dying." I thought I was yet dreaming, but I got up mechanically and followed my sister. On the bed, pale and cold as marble, lay mother. She had not undressed. She had thrown herself on the bed to rest; arising to go to me, she was seized with a palpitation of the heart, and was borne senseless to her room. I cannot tell you with what agony I looked upon her. My remorse was tenfold more bitter from the thought that she would never know it. I believed myself to be her murderer. I fell on the bed beside her. I could not weep. My heart was burned in my bosom; my brain was on fire. My sister threw her arms around me and wept in silence. Suddenly we saw a slight motion of mother's hand; her eyes unclosed. She had recovered consciousness, but not speech. She looked at me and moved her lips. I could not understand her words. "Mother, mother!" I shrieked, "say only that you forgive me!" She could not say it with her lips, but her hand pressed mine. She smiled upon me, and lifting her thin, white hands, she clasped my own within them, and cast her eyes upward. She moved her lips in prayer, *and thus she died*. I remained still kneeling beside that dear form, till my sister removed me. The joys of youth had left for ever.

Boys who spurn a mother's control, who are ashamed to own that they are wrong, who think it manly to resist her authority, or yield to

her influence, beware! Lay not up for yourselves bitter memories for future years.

Let every child, having any pretence to heart or manliness or piety, and who is so fortunate as to have a father or mother living, consider it a sacred duty to consult at any reasonable, personal sacrifice, the known wishes of such a parent, until that parent is no more; and our word for it, the recollection of the same through the after pilgrimage of life, will sweeten every sorrow, will brighten every gladness, will sparkle every tear drop with a joy ineffable. But be selfish still, have your own way, consult your own inclinations, yield to the bent of your own desires, regardless of a parent's commands and counsels and beseechings and tears, and as the Lord liveth your life will be a failure; because "the eye that mocketh at his father, and despiseth to obey his mother, the ravens of the valley shall pick it out, and the young eagle shall eat it."

THE BOY THE FATHER OF THE MAN.

Solomon said, many centuries ago, "Even a child is known by his doings, whether his work be pure and whether it be right." Some people seem to think that children have no character at all. On the contrary, an observing eye sees in these young creatures the signs of what they are likely to be for life. When I see a boy in haste to spend every penny as soon as he gets it, I think it a sign that he will be a spendthrift. When I see a boy hoarding up his pennies, and unwilling to part with them for any good purpose, I think it a sign that he will be a miser. When I see a boy or girl always looking out for him or herself, and disliking to share good things with others, I think it is a sign that the child will grow up a very selfish person. When I see boys and girls often quarreling, I think it a sign that they will be violent and hateful men and women. When I see a little boy willing to taste strong drink, I think it a sign that he will be a drunkard. When I see a boy who never attends to the services of religion, I think it a sign that he will be a profane, a profligate man. When I see a child obedient to his parents, I think it a sign of great future blessing from his Heavenly Parent. And though great changes sometimes take place in the character, yet, as a general rule, these signs do not fail.

THE PRETENTIOUS BOY.

A pretentious boy's character is soon revealed by his boisterous

speech, empty-headed whistling, noisy foot-steps, and disorderly conduct in general wherever and whenever he moves for the purpose of discharging the service required of him. Such a boy when known finds it difficult to get a place, and still more so to keep it after he gets it, so disagreeable does he make himself to all with whom he is brought in contact. Boys should, therefore, remember this, to-wit, that much of the capital which secures success in business, consists of good-breeding, affable, pleasing manners, unostentatious and orderly deportment.

THE BOY THAT IS RESPECTED.

Who is it? It is the boy, who conducts himself well, who is honest, diligent, and obedient in all things. It is the boy who is making an effort continually to respect his father, and obey him in whatever he may direct to be done. It is the boy who is kind to other little boys, who respects age, and who never gets into difficulties and quarrels with his companions. It is the boy who leaves no effort untried to improve himself in knowledge and wisdom every day—who is busy and attentive in endeavoring to do good acts towards others. Show me a boy who obeys his parents, who is diligent, who has respect for age, who always has a friendly disposition, and who applies himself diligently to get wisdom, and to do good towards others, and if he is not respected and beloved by everybody, then there is no such thing as truth in this world. Remember this, little boys, and you will be respected by others, and will grow up and become useful men.

WANTED—AN HONEST, INDUSTRIOUS BOY.

We lately saw an advertisement headed as above. It conveys to every boy an impressive moral lesson.

“An honest, industrious boy” is always *wanted*. He will be sought for; his services will be in demand; he will be respected and loved; he will be spoken of in terms of high commendation; he will always have a home; he will grow up to be a man of known worth and established character.

He will be *wanted*. The merchant will want him for a salesman or a clerk; the master mechanic will want him for an apprentice or a journeyman; those with a job to let will want him for a contractor; clients will want him for a lawyer; patients, for a physician; religious

congregations, for a pastor; parents for a teacher of their children; and the people, for an officer.

He will be *wanted*. Townsmen will want him as a citizen; acquaintances as a neighbor; neighbors as a friend; families as a visitor; the world as an acquaintance; nay, girls will want him for a beau, and finally for a husband.

An honest, industrious boy! Just think of it, boys, will you answer this description? Can you apply for this situation? Are you sure that *you* will be *wanted*? You may be smart and active, but that does not fill the requisition—are you honest? You may be capable—are you *industrious*? You may be well-dressed and create a favorable impression at first sight—are you both “honest and industrious?” You may apply for a “good situation”—are you sure that your friends, teachers, acquaintances can recommend you for those qualities? O, how would you feel, your character not being thus established, on hearing the words “can’t employ you!” Nothing else will make up for the lack of these qualities. No readiness or aptness for business will do it. You must be honest and industrious—must work and labor; then will your “calling and election” for places of profit and trust be made sure.

GIVE THE BOYS TOOLS.

In man there is what may be termed a “making instinct,” and our houses, garments, ships, machinery, and in fact, everything we use, are the practical results of this instinct. How important then that this faculty be cultivated, and that the idea be at once and forever abandoned that none but mechanics require this great element of usefulness and happiness! Whatever a man’s occupation, whether he be a farmer, a merchant, an artist or a mechanic, there are hourly occasions for its practical application. Being thus general in its usefulness, the cultivation of this constructive faculty should be a primary consideration with parents. Skill in the use of tools is of incalculable advantage. It gives useful employment to many an otherwise idle hour. It prompts one to add a thousand little conveniences to the house, which but for this skill would never be made. In a word, it is the carrying out, in a fuller sense, of the design of the Creator, when he implanted this faculty of constructiveness within us. Let it then be cultivated in children. Indulge the propensity to make water-wheels and miniature wagons, kites and toy boats, sleds and houses, anything in fact which will serve to develop it and render it practical-

ly useful. Give the boys good pocket knives, and what is better, give them a good workshop. Employed in it, they will not only be kept out of mischief, but they will be strengthening their muscles, exercising their mental powers, and fitting themselves for greater usefulness, when they shall be called upon to take their place in the ranks of men.

A HINT TO YOUTH.

“OLD men for counsel, and young men for war.” Never was axiom juster, if the world’s history be taken for the test. The blood of youth may be fiery, its tongue quick, and its heart impulsive and passionate; but more than counterbalancing all these, are its hope, its faith, its energy, and endurance, which, when experience has ripened and tempered judgment and speech, still spur on to high heroic action. The pioneer men of the world—on the battle field, in the van of colonization, in the development of art and science, and in the prosecution of the mightiest and most perilous enterprises for the world’s weal—have stood on the eastern declivity of life; have begun the march, prosecuted the endeavor, and won their most fadeless laurels, ere the noon of three-score-and-ten was past. Be up, then, and a-doing!

There is no moral object so beautiful to me as a conscientious young man. I watch him as I do a star in the heavens; clouds may be before him, but we know that his light is behind them, and will beam again; the blaze of others’ popularity may outshine him, but we know that, though unseen, he illuminates his own true sphere. He resists temptation, not without a struggle, for that is not virtue, but he does resist and conquer; he bears the sarcasm of the profligate, and it stings him, for that is a trait of virtue, but heals the wound with his own pure touch. He heeds not the watchword of fashion if it leads to sin; the Atheist who says not only in his heart, but with his lips, “there is no God!” controls him not; he sees the hand of a creating God, and rejoices in it. Woman is sheltered by fond arms and loving counsel; old age is protected by its experience, and manhood by its strength; but the young man stands amid the temptations of the world like a self-balanced tower. Happy he who seeks and gains the prop and shelter of morality. Onward, then, conscientious youth—raise thy standard and nerve thyself for goodness. If God has given

thee intellectual power, awaken in that cause; never let it be said of thee, he helped to swell the tide of sin by pouring his influence into its channels. If thou art feeble in mental strength, throw not that drop into a polluted current. Awake, arise, young man! assume that beautiful garb of virtue! It is difficult to be pure and holy. Put on thy strength, then. Let truth be the lady of thy love—defend her.

The inducements for the formation of a good character are almost innumerable. Among these the respect of the world should not be forgotten. All people love to be respected. To obtain respect one must possess a good character. The world respects goodness, and does it honor. No matter where it is found, in the palace or hovel, it will be respected. Every man has an inward reverence for goodness. He meets it with a feeling of awe. He pays a willing tribute to virtue. Nothing on earth is more beloved, esteemed, and honored in the world's great heart than a noble youth, one whose character is pure, whose aims are high, whose life is a moral essay. Men delight to do him good, to aid him, to give him place, preferment, office, or anything that he may desire at their hands. Bad men will respect him. Villians will "lie low" in his presence, and assume the outward garb of good men. And they, too, will vie with each other in doing him good. It is glorious to have the unlimited confidence and respect of all who know us, and to feel that such confidence is not misplaced. It is a thought that an angel may cherish in purity. To be conscious of being beloved for our real worth, respected and honored for the excellency of our characters, is a happiness rich and hallowing in its influence.

But let the youth fix it in his mind as a fact unalterably and everlastingly true, that this respect can not be gained without a good character. He can not deceive the world with respect to his true character. It will out. And if he has deceived for awhile, he will be all the more despised when he is found out. A character stainless as truth, sweet as goodness, upright as the soul of honesty, is the only thing with which to secure and hold the world's respect.

Again, let the youth fix it as a fact that he *must make his own character*. It is a work which God has wisely consigned to him alone. No other can do it for him. Not man, or angel, or God, can form a character for his soul. These may assist him, but the work he must do himself. Character is the unseen spirit-garment that one's thoughts and feelings weave about his soul with the invisible finger of the Divine law of reward and retribution.

And glorious is the thought that our characters are of our own forming. Not with wealth were they bought; and not as an inherited heir-loom did they descend upon us, nor as the patrimony of paternal industry; not with other hands were they formed, nor with other's exertions were they obtained. No; for they are ours. We formed them by industrious exertion in behalf of the good, the beautiful, and the true; formed them in the efforts of wisdom, virtue, and love, in trial, tears, and prayer, in struggle, discipline, and hope, in constancy, energy, and devotion; and formed them for the glory of our own souls, and the good of all with whom we are linked in love and duty. We formed them for earth, and formed them for the skies. We shall wear them through time, and wear them in eternity; but, God be thanked, we may brighten and strengthen them below, and adorn and enrich them more and more even forever in heaven.

TO YOUNG LADIES.

WE wish to say a word to you, young ladies, about your influence over young men. Did you ever think of it? Did you ever realize that you could have any influence at all over them? We believe that a young lady by her constant, consistent Christian example, may exert an untold power. You do not know the respect and almost worship which young men, no matter how wicked they may be themselves, pay to a consistent Christian lady, be she young or old.

A gentleman once said to a young lady who boarded in the same house with him, that her life was a constant proof of the Christian religion. Often the simple request of a lady will keep a young man from doing wrong. We have known this to be the case very frequently; and young men have been kept from breaking the Sabbath, from drinking, from chewing, just because a lady whom they respected, and for whom they had an affection, requested it. A tract given, an invitation to go to church, a request that your friend would read the Bible daily, will often be regarded, when a more powerful appeal from other sources would fall unheeded upon his heart. Many of the gentlemen whom you meet in society are away from the influence of parents and sisters, and they will respond to any interest taken in their welfare. We all speak of a young man's danger from evil associates, and the very bad influence which his dissipated gentlemen associates have upon him. We believe it is all true that a gentleman's character is formed to a greater extent by the ladies that he associates with

before he becomes a complete man of the world. We think, in other words, that a young man is pretty much what his sisters and young lady friends choose to make him. We knew a family where the sisters encouraged their young brothers to smoke, thinking it was manly, and to mingle with gay, dissipated fellows because they thought it "smart;" and they did mingle with them body and soul, and abused the same sisters shamefully. The influence began further back than with their gentleman companions. It began with their sisters, and was carried on through the forming years of their character. On the other hand, if sisters are watchful and affectionate they may in various ways—by entering into any little plan with interest, by introducing their younger brothers into good ladies' society—lead them along till their character is formed, and then a high-toned respect for ladies, and a manly self-respect, will keep them from mingling with low society.

If a young man sees that the religion which in youth he was taught to venerate, is lightly thought of, and perhaps sneered at, by the young ladies with whom he associates, we can hardly expect him to think that it is the thing for him. Let none say that they have no influence at all. This is not possible. You cannot live without having some sort of influence, any more than you can without breathing. One thing is just as unavoidable as the other. Beware, then, what kind of influence it is that you are constantly exerting. An invitation to take a glass of wine, or to play a game of cards, may kindle the fires of intemperance or gambling, which will burn forever. A jest given at the expense of religion, a light, trifling manner in the house of God, or any of the numerous ways in which you may show your disregard for the souls of others, may be the means of ruining many for time and eternity.

THE BIBLE.

VIEWED merely as a human or literary production, the Bible is a marvelous book, and without a rival. All the libraries of theology, philosophy, history, antiquities, poetry, law, and policy would not furnish material enough for so rich a treasure of the choicest gems of human genius, wisdom, and experience. It embraces works of about forty authors, representing the extremes of society, from the throne of the king to the boat of the fisherman; it was written during a long

period of sixteen centuries, on the banks of the Nile, in the desert of Arabia, in the land of promise, in Asia Minor, in classical Greece, and in imperial Rome; it commences with the creation and ends with the final glorification after describing all the interesting stages in the revelation of God and the spiritual development of man: it uses all forms of literary composition; it rises to the highest heights and descends to the lowest depths of humanity; it measures all states and conditions of life; it is acquainted with every grief and every woe; it touches every chord of sympathy; it contains the spiritual biography of every heart; it is suited to every class of society, and can be read with the same interest and profit by the king and the beggar, by the philosopher and the child; it is as universal as the race, and reaches beyond the limits of time into the boundless regions of eternity. Even this matchless combination of human excellencies point to its divine character and origin, as the absolute perfection of Christ's humanity is an evidence of his divinity.

But the Bible is, first and last, a book of religion. It presents the only true, universal, and absolute religion of God, both in its preparatory process or growth under the dispensation of the law and the promise, and in its completion under the dispensation of the Gospel a religion which is intended ultimately to absorb all the religions of the world. It speaks to us as immortal beings on the highest, noblest, and most important themes which can challenge our attention, and with an authority that is absolutely irresistible and overwhelming. It can instruct, edify, warn, terrify, appease, cheer, and encourage as no other book. It seizes man in the hidden depths of his intellectual and moral constitution, and goes to the quick of the soul, to that mysterious point where it is connected with the unseen world and with the great Father of spirits. It acts like an all-penetrating and all-transforming leaven upon every faculty of the mind and every emotion of the heart. It enriches the memory, it elevates the reason, it enlivens the imagination, it directs the judgment, it moves the affections, it controls the passions, it quickens the conscience, it strengthens the will, it kindles the sacred flame of faith, hope, and charity; it purifies, ennobles, sanctifies the whole man, and brings him into living union with God. It can not only enlighten, reform, and improve, but regenerate and create anew, and produce effects which lie far beyond the power of human genius. It has light for the blind, strength for the weak, food for the hungry, drink for the thirsty; it has a counsel, in precept or example, for every relation in life, a comfort for every sorrow, a balm for every wound. Of all the books in the world the

Bible is the only one of which we never tire, but which we admire and love more and more in proportion as we use it. Like the diamond, it casts its luster in every direction ; like a torch, the more it is shaken the more it shines ; like a healing herb, the harder it is pressed the sweeter is its fragrance.

CHRIST THE MODEL MAN.

CHRIST was free from all one-sidedness, which constitutes the weakness as well as the strength of the most eminent men. He was not a man of one idea nor of one virtue towering above all the rest. The moral forces were so well tempered and moderated by each other, that none was unduly prominent, none carried to excess, none alloyed by the kindred failing. Each was checked and complemented by the opposite grace. His character never lost its even balance and happy equilibrium, never needed modification or readjustment. It was thoroughly sound and uniformly consistent from the beginning to the end.

We cannot properly attribute to him any one temperament. He was neither sanguine like Peter, nor choleric like Paul, nor melancholy like John, nor phlegmatic as James is sometimes, though incorrectly represented to have been, but he combined the vivacity without the levity of the sanguine, the vigor without the violence of the choleric, the seriousness without the austerity of the melancholic, the calmness without the apathy of the phlegmatic temperament.

He was equally far removed from the excesses of the legalist, the pietist, the ascetic, and the enthusiast. With the strictest obedience to the law, he moved in the elements of freedom ; with all the fervor of the enthusiast, was always calm, sober, and self possessed ; notwithstanding his complete and uniform elevation above the affairs of this world, he freely mingled with society, male and female, dined with publicans and sinners, sat at the wedding feast, shed tears at the sepulchre, delighted in God's nature, admired the beauties of the lilies, and used the occupations of the husbandman for the illustration of the sublimest truths of the kingdom of heaven. His virtue was healthy, manly, vigorous ; yet genial, social, and truly humane, never austere and repulsive, always in full sympathy with innocent joy and pleasure. He, the purest and holiest of men, provided wine for the wedding feast, introduced the fatted calf and music and dancing into

the picture of welcome of the prodigal son to his father's house, and even provoked the sneer of his adversaries that he "came eating and drinking," and was a "glutton" and a "wine-bibber."

His zeal never degenerated into passion or rashness, his constancy into obstinacy, his benevolence into weakness, nor his tenderness into sentimentality. His unworldliness was free from indifference and unsociability, his dignity from pride and presumption, his affability from undue familiarity, his self-denial from moroseness, his temperance from austerity. He combined child-like innocence with manly strength, all-absorbing devotion to God with untiring interest in the welfare of man, tender love to the sinner with uncompromising severity against sin, commanding dignity with winning humility, fearless courage with wise caution, unyielding firmness with sweet gentleness.

He is justly compared with the lion in strength and with the lamb in meekness. He equally possessed the wisdom of the serpent and the simplicity of the dove. He brought both the sword against every form of wickedness, and the peace which the world cannot give. He was the most effective, and yet the least noisy, the most radical and yet the most conservative, calm, and patient of all reformers. He came to fulfil every letter of the law, and yet he made all things new.

The same hand which drove the profane traffickers from the temple, blessed little children, healed the lepers, and rescued the sinking disciple; the same ear which heard the voice of approbation from heaven was open to the cries of the woman in travail; the same mouth which pronounced the terrible woe on hypocrites and condemned the impure desire and unkind feeling as well as the open crime, blessed the poor in spirit, announced pardon to the adulteress, and prayed for his murderers; the same eye which beheld the mysteries of God, and penetrated the heart of man, shed tears of compassion over ungrateful Jerusalem, and tears of friendship at the grave of Lazarus.

These are indeed opposite traits of character, yet as little contradictory as the different manifestations of God's power and goodness in the tempest and sunshine, in the towering Alps and the lily of the valley, in the boundless ocean and the dew drop of the morning. They are separated in imperfect men, indeed, but united in Christ, the universal model for all.

TO PARENTS AND TEACHERS—WHY TEACHERS FAIL.

OF the large number of those who engage in the work of teaching, but few, comparatively, are successful. A very large majority teach but a short time and with no true success. It may not be unprofitable to consider some of the reasons for these numerous cases of failure in teaching. That such cases are numerous, no one will question,—but why they are so numerous, but few stop to consider. It will be one object in this article to name a few of the more prominent reasons as they occur to us.

1. *Want of sufficient education.* It is often the case that persons enter the teacher's desk with a very limited educational capital. By the favor of some relative or the committee, and by the direct or indirect connivance of the examiners, they are entrusted with work for which they have no proper qualification. From want of the requisite knowledge, they fail to interest their pupils or to awaken any true love for school and its exercises.

2. *An excess of education.* This may seem rather paradoxical. It is, however, unquestionably true that some *know too much*,—in their own estimation,—to teach a common school. They have pursued a collegiate course of study, and have acquired a somewhat superficial knowledge of many branches. Their elementary training was entirely neglected or but very imperfectly attended to. Most of their time and attention have been devoted to the study of the "languages" and the "higher branches," and they consider it "beneath their dignity" to teach the common branches. Indeed, they do not thoroughly understand them. Latin, and Greek, and French they know, but reading and spelling they poorly comprehend. Algebra, Geometry, Philosophy, Chemistry, and Geology they are somewhat familiar with, but of Grammar, Geography and Arithmetic they know but little, and care less. They are of the class thus described by the inimitable Dickens:—"He and some one hundred and forty other teachers had been lately turned, at the same time, in the same factory, on the same principle, like so many piano forte legs. He had been put through an immense variety of paces, and had answered volumes of head-breaking questions. Orthography, etymology, syntax, and prosody, biography, astronomy, geography, and general cosmography, the science of compound proportion, algebra, land surveying, and leveling, vocal music and drawing from models, were all as at the end of his ten chilled fingers. He had taken the bloom of the higher branches of mathe-

matics and physical science, French, German, Latin, and Greek. He knew all about all the water-sheds of all the world, and all the names of all the rivers and mountains, and all the productions, manners, and customs of all the countries, and all their boundaries and bearings on the two and thirty points of the compass. Ah, rather over-done. If he had only learned a little less, how infinitely better he might have taught much more!"

3. *Want of a lively interest in the work.* No one can expect true success to attend any work in which he engages with feelings of indifference. Especially is this true of teaching. Unless one feels that his work is an important one—a work for which he has a love—he will hardly engage in its performance with a zeal and earnestness which will make success sure.

4. *An excess of confidence.* A degree of confidence in one's ability to do a work is essential to his success in its accomplishment. Indeed he must feel that he *can* do before he *will* do. But some teachers have a superabundance of confidence in themselves. They know too much to know more. They cannot be told anything. Hints or suggestions from fellow teachers, committees or parents, they spurn as useless—or, perhaps, regard as insults.

5. *A lack of confidence.* If an *excess* of confidence is undesirable, a *deficiency* is equally so. A degree of it is indispensable to true success. To feel that we *can* do a certain work will do much to make its accomplishment certain.

6. *A want of true courtesy.* If a teacher would be in the truest sense successful and useful, he must have the respect and good wishes of those with whom he is called to labor. A lack of genuine politeness has done much to prevent the usefulness of many a teacher. A rough exterior, negligence of personal appearance and dress, unpolished and abrupt modes of address or excessively formal and frigid manners, have, in many cases, blighted the prospects of teachers whose intellectual qualifications were ample.

7. *Want of patience.* It is frequently the case that teachers despond and labor in vain because they are too impatient. When they do not see immediate and abundant fruits of their labors, they are too apt to feel that they have not done what they ought. An impatient or desponding spirit will always prove hurtful in the school room, and they who indulge the same will not prove successful. It is the teacher's duty to labor wisely and patiently; to sow the good seed with diligent and careful hand: another and a greater will give the in-

crease in his own good time—particularly is this so in moral culture and results.

8. *Want of adaptation.* Some teachers have the ability to succeed in some particular situation and under a certain order of arrangements and circumstances, while the most trifling change or deviation will cause a failure. Lacking the ability to adapt themselves to existing circumstances and surroundings, they lack one of the most important essentials to success.

9. *Want of professional feeling and interest.* "Every man," said Webster, "owes a debt to his profession." By this we understand that every member of a profession is under obligations to do what he can for the elevation of his profession. This he must do by promoting his own improvement, by uniting with others in associational effort, and in various ways by manifesting a professional interest and feeling—a true *esprit de corps*. A teacher who secludes himself, withdrawing from all associated efforts and meetings for mutual improvement, may keep a good school—but as a man and as a professional teacher he will fall far behind the mark. If his own views, plans, and results are entirely satisfactory to himself, he will, if he has true professional feeling, gladly communicate them to others and not be content to hide his light as under a bushel. We would then advise all teachers who would make success sure, to unite heartily in every effort and plan designed for the good of their profession. By the very means adopted for professional improvement, personal profit and advancement will be secured.—*Conn. Com. School Journal*.

EDUCATION.

ADVANTAGE OF EDUCATION TO LABORERS.

Manufacturers find intelligent educated mechanics more profitable to employ, even at higher wages, than those who are uneducated. We have never met any one who had much experience in employing large numbers of men who did not hold this opinion, and, as a general rule, those manufacturers are most successful who are most careful to secure intelligent and skillful workmen.

It requires extensive observation to enable one even partially to appreciate the wonderful extent to which all the faculties are developed by mental cultivation. The nervous system grows more vigorous and

active, the touch is more sensitive, and there is greater mobility in the hand.

We once knew a weaving room filled with girls above the average in character and intelligence, and there was one girl among them who had been highly educated. Though length of arms and strength of muscle are advantages in weaving, and though this girl was short and small, she always wove the greatest number of pieces in the room, and consequently drew the largest pay at the end of every month. We might fill many pages with similar cases which have come under our own observation, but there is no occasion. It has long since been settled by the general observation of manufacturers, that intelligent workmen will do more and better work than ignorant ones.

But the excess in the amount of work performed is not the most important respect in which an intelligent workman is superior to a stupid one. He is far more likely to be faithful to the interests of his employer, to save from waste and to turn to profit every thing that comes to his hand. There is also the exalted satisfaction of being surrounded by thinking, active and inquiring minds, instead of by brutes.

Such are some of the advantages to the "Captains of Industry," which result from the employment of intelligent workmen; not in one article, nor in any number of articles, could these advantages be fully set forth. And if it is impossible to state the advantages to the employer, how vain must be the effort to describe those which result to the workman himself!

The increase of wages is the least and lowest of the rich rewards of mental culture. The whole being is enlarged and exalted; the scope of view is widened; the objects of interest are increased; the subjects of thought are multiplied; life is more filled with emotion; and the man is raised in the scale of creation.

To intelligent English travelers, nothing in the United States has excited such wonder and admiration as Lowell, Nashua, Manchester, Lawrence, and the other manufacturing towns of New England. That factory-girls should play on the piano, and sustain a creditable magazine by their own contributions; that their residences should be clean, commodious, and elegant; that factory-men should be intelligent gentlemen, well-read in literature, and totally unacquainted with beer and its inspirations, have been, for many years, the crowning marvels of America to all travelers of right feeling and good judgment.

EDUCATION OF BUSINESS MEN.

In the education of a business man, it must never be forgotten, that his future life will be a life of action and study. Great care must therefore be taken that the health be not impaired in a strife for useless honors, that the feelings be not suffered to grow over-sensitive in recluse contemplation, nor the mind lose its spring and elasticity under a load of cumbersome and unpractical learning. It has been said that at least one-fourth of the students of colleges leave them with impaired health; full one-half are too sensitive to bear the rude jostlings of the world; and perhaps two-thirds of the remainder have some defect that would seriously mar their happiness and usefulness.

KNOWLEDGE.

ACQUIREMENT of every kind has two values—value as knowledge, and value as discipline. Besides its use for guidance in conduct, the acquisition of each order of facts has also its use as mental exercise; and its effects as a preparative for complete living have to be considered under both these heads.

Knowledge cannot be acquired without pains and application. It is troublesome and deep digging for pure water, but when once you come to the springs, they rise up and meet you. Every grain helps fill the bushel, so does the improvement of every moment increase knowledge.

Says Swedenborg: It is of no advantage to man to know much, unless he lives according to what he knows, for knowledge has no other end than goodness; and he who is made good is in possession of a far richer treasure than he whose knowledge is the most extensive, and yet is destitute of goodness; for, what the latter is seeking by his great acquirements, the former already possesses.

One of the most agreeable consequences of knowledge is the respect and importance which it communicates to old age. Men rise in character often as they increase in years; they are venerable from what they have acquired and pleasing from what they can impart. Knowledge is the treasure, but judgment the treasurer of a wise man. Superficial knowledge, pleasure dearly purchased, and subsistence at the will of another, are the disgrace of mankind.

W I S D O M.

THE beginning of wisdom is to fear God, but the end of it is to love him. The highest learning is to be wise; and the greatest wisdom, is to be good. The wise man looks forward into futurity, and considers what will be his condition millions of ages hence, as well as what is at present. A wise man, says Seneca, is provided for occurrences of any kind: the good he manages, the bad he vanquishes; in prosperity he betrays no presumption, and in adversity he feels no despondency.

The chief properties of wisdom are to be mindful of things past, careful for things present, and provident for things to come.

He that thinks himself the happiest man is really so; but he that thinks himself the wisest is generally the greatest fool.

It is the part of wisdom to do great things without a fuss. When Solomon, the wisest of men, built his wondrous temple, no sound of saw or hammer was heard therein.

 SCIENCE AND PHILOSOPHY.

PROF. HENRY, the distinguished savan, and head of the Smithsonian Institute, testifies that he knows but one man among the scientific men of the United States who is an infidel. This fact speaks volumes, and shows conclusively that the lights of science have any other tendency than to make men skeptical or unbelievers. It is usually your pretenders to scientific knowledge, or men wholly destitute of any scientific attainments, who disbelieve, or affect to do so. As a general remark, we think it will be found that a vast majority of them belong to the latter class, being wholly ignorant, or, what is worse, mere smatterers. Lord Bacon tells us "a little philosophy inclineth a man's mind to atheism; but *depth* in philosophy bringeth man's mind about to religion.

For all practical purposes, true science is a *thorough knowledge of a man's own business*.

It is the work of a philosopher to be every day subduing his passions and laying aside his prejudices. A philosopher never deems any man beneath his notice; for there is no mind that can not furnish some scraps of intellectual entertainment.

Practical philosophy is that which enables us to look at the ills of life, its disappointments and its diseases, in a manner which does much to surmount them and deprive them of the power to do any permanent injury. True philosophy has no pretense about it; no chicanery, no fraud; it does not worry itself in the endeavor to make the worse appear the better reason, or in making troublesome concealments; on the contrary, it finds a happiness and a grateful relief even in a frankness which endangers a storm of ridicule.

THE BENEFIT OF SINGING.

1. It improves our speaking. It often corrects any defects of speech, such as stammering, hissing or a nasal enunciation. Some parents have declined to send their children to the Singing School because of these defects of voice. This is a great mistake.

2. It improves our hearing. By listening to singing, we learn to distinguish the relative position of the notes uttered by one voice; our ear thus becomes practiced, and able to convey the nice distinction of tone to the seat of perception. Thus, by endeavoring gradually to imitate others, we succeed in rendering the organs of voice capable of reproducing the sounds which the ear has received.

3. It improves the health of children. One of the prejudices most obstinately maintained against teaching children to sing, arises from an opinion frequently broached, that singing, if practised at a tender age, may have a baneful influence on the health, and may occasion spitting of blood and other pulmonary affections. It is not long since this idea prevailed in Germany also; but the most minute investigations, made by governments as well as parents, have proved it to be quite erroneous.

Nothing is better calculated than the practice of singing to produce the power of free respiration. We are convinced that singing, or as it may be termed, the art of breathing, is one of the best preventives of, and surest remedies for, general weakness of the chest; and that its use, provided always it be proportioned to the other physical powers of the singer, is calculated to exert a most favorable influence on delicate constitutions, to impart vigor to the organs connected with the lungs, and thus to conduce to a healthy state of all parts of the body.

It was the opinion of Dr. Bush, that singing by young ladies, whom

the customs of society debar from many other kinds of salubrious exercise, ought to be cultivated not only as an accomplishment, but as the means of preserving health. He particularly insists that vocal music should never be neglected in the education of a young lady, and states that besides its salutary operation in soothing the cares of domestic life, it has a still more direct and important effect. In his remarks on this subject, the Doctor introduces a fact which was suggested to him by his professional experience, which is, that the exercise of the chest by singing contributes very much to defend the lungs from the diseases to which the climate and other causes expose them. The Germans, he continues, are seldom afflicted with consumption, nor has he ever known more than one instance of spitting of blood among them. This, he believes, is in part occasioned by the strength which constitutes an essential branch of their education.

MUSIC AT HOME.

WE find in the *American Agriculturist* the following: "No family can afford to do without music. It is a luxury and an economy; an alleviator of sorrow, and a spring of enjoyment; a protection against vice and an incitement to virtue. When rightly used, its effects, physical, intellectual and moral, are good, very good, and only good. Make home attractive; music affords a means of doing this. Contribute kindly feeling, love. Music will help in this work. Keep out angry feeling. "Music hath charms to soothe the savage breast." Be economical. Pleasure, recreation, all must have, and no pleasure costs less in proportion to its worth than home music. Make your sons and daughters accomplished. What accomplishment is more valuable than music? Fit your daughters to support themselves in the future, if need be. There has been no time in many years when any young lady having sufficient knowledge to teach music could not pleasantly earn a respectable support in that way. "But," some may say, "I have no ear for music, nor have any of my family." Probably not one of you has ever tried it faithfully. Perhaps your sons had no natural "ears" for reading, or your daughters natural hands for writing; and certainly unless they had learned these things they would never have been accomplished in them. Music does, indeed, come more naturally to most people than many other accomplishments that are next to universal; yet it does not come to all without much time

spent in careful cultivation. "The one best means of introducing music to the family, and inducing its cultivation is to procure a good musical instrument. If none of your daughters or sons can play at all, yet if they have a good instrument at hand, some of them will learn. In almost every family this will be the case. Buy an instrument and try the experiment; if it succeeds only to a very small extent, the cost will be repaid many fold." Says Shakespeare:—

The man that hath no music in himself,
Nor is moved with concord of sweet sounds,
Is fit for treasons, stratagems, and spoils;
The motions of his spirit are dull as night,
And his affections dark as Erebus:
Let no such man be trusted.

READING—WHAT TO READ AND HOW TO READ.

READING is one of the greatest consolations of life; it is the nurse of virtue; the upholder in adversity; the prop of independence; the support of a just pride, the strengthener of elevated opinions; it is the shield against the tyranny of all the petty passions; it is the repeller of the fool's scoff and the knave's poison.

Among the questions addressed to us by those who do us the honor to ask our advice, there is not one which we oftener receive than this: What books would you advise a young person to read for the improvement of his mind? It is a puzzling question to answer, when we know nothing of our correspondent's character and education. Yet it is pleasant to know, that, somewhere in our vast circle of readers, in some secluded farm-house, or work-shop, far from the crowded haunts of men, there is, at least, *one* young human soul athirst for knowledge.

What shall you read? Read whatever good book you *like* to read. Reading is, in one respect, like eating; it does not do you much good unless you have an appetite for it. The realm of knowledge is so vast, that the most learned man is obliged to leave some of its paths untrodden, and some of its great provinces unvisited. What do you *want* to know? Respecting what subject of inquiry, has your curiosity been awakened? Read about *that*.

What shall you read? Read what will enable you to *work* successfully. Understand your own trade or profession to the bottom.

Know the science of it, the history of it, and all the hidden secrets of it, which books reveal. If you are an artisan, read Watt, Stephenson, Ben. Franklin, and all other great and glorious Heroes of the Workshop. If you are a farmer, despise not knowledge which books contain respecting your noble and beautiful calling. If you are a man of leisure, the most dangerous of Heaven's gifts, read and think incessantly till you have learned what to do with it; for you must make it tell on the good of the community, or it will curse you and your children to the third generation.

What shall you read? Read that which will help you to *vote* intelligently. Read the History of your country, up and down, and crosswise. Read all about it; its colonial history; its revolutionary history; its political history. Read it, till you understand clearly how the United States of the year 186— came to be the country you find it. Read one good general newspaper; for the newspaper is the link which connects each individual with the great Life of mankind. The man who reads no newspaper is a man cut off from his species.

What shall you read? Read beautiful things. Read the high, the sweet, the eloquent words of inspired and gifted men and women; poets, orators, prophets, sages; the noble and the good of all ages and all climes. But above all, read the sacred volume. Oh! yes; read the sacred volume! Read something for the *soul* every day you live. If you starve your body, stunt not the mind for lack of nourishment.

“In reading authors, when you find
Bright passages that strike your mind,
And which, perhaps, you may have reason
To think of at another season;
Be not contented with the sight,
But take them down in black and white;
Such a respect is wisely shown,
To make another's sense one's own.

Imprint the beauties of authors upon your imagination, and their morals upon your heart. With many readers, brilliancy of style passes for affluence of thought; they mistake buttercups in the grass for immeasurable gold mines under ground.

The author of “Waverly” remarks somewhere in that work, that a feeble and indecisive habit of mind is produced by desultory and omnivorous reading. Pliny and Seneca, in giving advice on reading, agreed that “men should read much but not many books.” It is remarkable that many great writers and eminent men seem to have had some particular favorite author which they studied continually. De-

mosthenes made Thucydides his model in style, and re-copied his history eight times. Lord Clarendon studied Livy and Tacitus. Voltaire's favorite books were the *Athelia* of Racine, and the *Petit Careme* of Massilon. Diderot wanted "Moses, Homer and Richardson" as his authors. Fenelon's favorite was Homer. Montesquieu chose Tacitus. Bourdaloue re-read every year St. Paul, Chrysostom, and Cicero. Grotius studied Lucan. The favorite author of the Earl of Chatham was Barrow. Sir William Jones read Cicero through every year.

Many other examples might be given; and in this era of books it would be a great advantage to real improvement in learning and literature, if women as well as men would select some one author, or some few books to be studied thoroughly, instead of skimming over hundreds of new publications.

Reading without purpose is sauntering, not exercise. More is got from one book on which the thought settles for a definite end in knowledge, than from libraries skimmed over by a wandering eye. A cottage flower gives honey to the bee, a king's garden none to the butterfly. Youths who are destined for active careers, or ambitious of distinction in such forms of literature as require freshness of invention or originality of thought, should avoid the habit of intense study for many hours at a stretch. There is a point in all tension of the intellect beyond which effort is only waste of strength. Fresh ideas do not readily spring up within a weary brain; and whatever exhausts the mind not only enfeebles its power, but narrows its scope. We often see men who have over-read at college, entering upon life languidly as if they were about to leave it. They have not the vigor to cope with their own generation, for their own generation is young, and they have wasted the nervous energy which supplies the sinews of war to youth, its contests for fame or fortune. Study with regularity, at settled hours. Those in the forenoon are the best, if they can be secured. The man who has acquired the habit of study, though for only one hour every day in the year, and keeps to the one thing studied till it is mastered, will be startled to see the way he has made at the end of the twelvemonth. He is seldom overworked who can contrive to be in advance of his work. If you have three weeks before you to learn something which a man of average quickness could learn in a week, learn it the first week, and not the third. Business despatched is business well done, but business hurried is business ill-done. In learning what others have thought, it is well to keep in practice the power to think for one's self. When an author has added

to your knowledge, pause and consider if you can add nothing to his. Be not contented to have learned a problem by heart; try and deduce from it a corollary not in the book. Spare no pains in collecting details before you generalize; but it is only when details are generalized that a truth is grasped. The tendency to generalize is universal with all men who achieve great success, whether in art, literature, or action. The habit of generalizing, though at first gained with care and caution, secures, by practice, a comprehensiveness of judgment and a promptitude of decision, which seem to the crowd like intuitions of genius. And, indeed, nothing more distinguishes the man of genius from the mere man of talent than the facility of generalizing the various details, each of which demands the aptitude of a special talent; but all of which can only be gathered into a whole by the grasp of a mind which may have no special aptitude for any.

NEWSPAPERS AND THEIR VALUE.

THE editor keeps the world's day book; the historian keeps the ledger. A European traveler describes the United States as "a country where every man has a newspaper in his pocket." This is a very correct national characteristic, and a distinctive one from what any other nation could apply to itself. Every man in this country has not only a newspaper in his pocket, but what is better, every man knows how to read and understand it. Newspapers have been so cheap in the United States that every individual could afford to take one, and he has been so long doing this that his daily journal has become as indispensable to him as his daily food. In fact he could do much better without some article of daily consumption on his table than to do without the daily food for his mind which a newspaper supplies, and which keeps the humblest man as well posted as his more wealthy neighbor in all matters affecting his political, social and moral good. It is the general diffusion of intelligence among the people through newspapers—that kind of intelligence which is the most practical and the most useful, because appertaining to all the movements of society, of which he is a living and breathing member—that gives such activity and earnestness to American life, and makes every individual nature self-dependent and thoroughly conscious of his manhood.

It is a great mistake, to female education, to keep a young lady's time and attention devoted to the fashionable literature of the day.

If you would qualify her for conversation you must give her something to talk about—give her education with this actual world and its transpiring events. Urge her to read the newspapers and become familiar with the present character and improvement of our race. History is of some importance; but the past world is dead and we have nothing to do with it. Our thoughts and our concerns should be for the present world, to know what it is and improve the condition of it. Let her have an intelligent opinion, and be able to sustain an intelligent conversation, concerning the mental, moral, political and religious improvement of our times. Let the gilded annals and poems of the center-table be kept part of the time covered with weekly and daily journals. Let the whole family—men, women and children—read the newspapers.

How lonesome the fireside where there is no paper! Ask the man who has a family paper to read with the latest news, the good stories, the useful lessons, with the witty sayings of the newspaper—ask him its value. Let him be deprived of it for a few weeks, and ask him to put an estimate on it.

Says the *Educational Monthly*: It is possible that we overrate the influence of the newspaper as an educator, but we think not. It is the voice of the living world. It is history, art, philosophy, science, truth, justice, rhetoric, grammar, and everything else—not unmixed with falsehood and nonsense, but not more so mixed than the home infant school for girls, from which boys break away before their bones are out of gristle. Take grammar, natural history, rhetoric and composition. Where are these so well taught as in the carefully edited newspaper? What better lesson in rhetoric than to see some popular writer or famous scholar roasted alive on the hot coals of criticism? Where are better examples of tasteful composition? Where is a better cabinet of natural history? What in all the world escapes the newspaper editor? And if he commits blunders in grammar, or logic, or fact, or philosophy, is he not forthwith served up on a gridiron by another editor? Where, but in a newspaper, will be found a running history of all the literature of the day? Where else are you told what books you may safely buy, what are not worth putting on your shelves, and what would be as hurtful to the minds of your children as henbane to their bodies.

NOVEL READING.

THE morals of a people, as well as their intellectual character, are affected by the literature of a people. This is true of individuals and of nations. Alexander's character was moulded and shaped very much, by the constant reading of Homer. He is said to have carried continually with him the Iliad, that by contemplating the life and character of Achilles, the great ideal hero of the poem, he might himself become truly heroic. Our Puritan fathers were truly brave, as well as good men, but they had drank in the spirit of Milton, Howe and Baxter, the great authors of their age and nation.

He who said "Let me write the ballads of a nation, and I care not who makes her laws," meant to state a great principle. He meant to state, that the morals of society are more affected by works, which address the imagination, than by philosophy and legislative enactments. The young especially, whose passions are ardent, whose imagination is ever on the wing, love to dwell in an *ideal* world, rather than in a world of reality. They crave the romantic, the strained, the startling. Works of fiction are evidently adapted to feed and fire this natural propensity.

We have only then to multiply works of this character, and scatter them broad-cast over the land, and the minds of the young receive an effectual bias which may fit them to move in some ideal world, but not in this world of toil and trial, and moral responsibility. To do this—to make the mind robust and healthy—to fit moral agents for their high duties and destinies, the mind and the moral feelings must undergo a severe and rigid discipline, which it is not the province of fiction to impart. From the multiplication of works of fiction, from their cheapness, from their universal diffusion, we see the danger to which the youth of our country are exposed. Indeed, we have experienced, to some extent, the fascinating power of this species of literature; we have stood within the charmed circle, and our imagination has reeled beneath the intoxicating influence. And now, that we have retreated from the enchanted ground, we see the danger over whom the sorceress is still weaving her spell, and breathing her incantations. May we not then be permitted to lift up the voice of warning—to speak very briefly, of the effects upon the intellect and the heart, of indiscriminate novel reading?

That this species of excitement affects injuriously the *intellectual* character, there can be no doubt. All the powers of the mind should

be duly exercised to secure a happy and harmonious development—the reason, the conscience, the memory, as well as the imagination. But it is this peculiar design of works of fiction, to address and stimulate to excess, the latter faculty. The reasoning power, which is the chief glory of man, is not called into exercise; the conscience finds little or nothing to awaken its energies, but is rather blinded by the deceptive radiance shed around it; the memory is taxed in following the intricacies of a plot; rather than the actings of principle, the exaggerated development of an exciting story, rather than the truthful representations of incident and character. The exercise is consequently morbid and unhealthy. The harmony of the mind, by such a process, is destroyed, and the imagination is left to travel wildly and without restraint over a false and fairy land. A love for the excitement of romance imparts a disrelish for works of a positive and practical utility. Science, philosophy, and history, are laid aside, as requiring too much thought and study. An habitual novel reader is like an epicure, who lives to eat, and does not eat to live, and who has no appetite for plain food, unless accompanied with wines and stimulating cordials. With what utter disgust would he turn away from the lofty conceptions of Dugald Stewart, the reasonings of a Butler, or the eloquence of a Bates, or a Barrows. He denounces these, as characterized by unendurable dulness and stupidity. Excitement, *mere excitement*, is the luxury of his life and the ultimatum of his reading. And what has produced this mental distortion, this excessive and absorbing love of the fabulous, *the ideal*, rather than the true and the useful? There must have been brought to bear the arts of fascination and sorcery. The enchantress who mingles the wine-cup and wreathes the dance, must have been with the deluded victim, beguiling him with the music of her blandishment, and inducing him to sacrifice all that is lofty and noble in mind, at the shrine of her own idolatry.

But the effects of *novel reading* are perhaps more marked upon the *moral* character. Most professed novel writers are, we believe, no great sticklers for morality. A very low standard satisfies them. A romantic love, a reckless daring, an uncomplaining patience under the imaginary evils of life, fealty and fortitude, are among the loftiest of their delineated virtues; while positive vices, such as treachery and intrigue, seduction and murder, are unfrequently made the theme of eulogy. The pirate, the duelist, the debauchee, are often made the admired heroes of a tale or a tragedy. The downward path to ruin is crowded with scenes and incidents the most enchanting and

the most seductive. False views of life and character are presented. The prominent pictures or persons, in the ideal scene, are generally too highly colored—the lights are too strong—the shadows too deep—the heroes and heroines too brave or beautiful—the villains too interesting—the incidents and exploits too unlike the average realities of life. Can such a representation fail to affect the interested and excited reader? Will not his mind receive a bias prejudicial to his highest interests? And will not the heart drink in the false sentiments inculcated, as the earth drinketh in the dew? If the morals and religion of our country are in danger from the rapid influx of foreign population, *the dregs of European society*, far greater is the danger from the popular literature that is flooding our country and sweeping away the high barriers of truth and virtue. Every good man, every patriot, every parent, has a vital interest in this matter. To the sons and daughters of our land must soon be committed its social interests; for the right management and guardianship of which, they will be miserably prepared by their growing familiarity with the enervating and depraving pictures of foreign fashionable licentiousness, which everywhere abound in the popular literature of the day. Those who live in a world of dreams and visions, who are accustomed to follow the fabulous vicissitudes—the extatic joys and sorrows, the romantic exploits of some fancied hero or heroine, will find the sober realities and duties of life quite uncongenial to their excited sensibilities. They may have wept over the sorrows of a Werter, or over some tale of imaginary suffering, but for hearts really crushed under the heavy burdens of life, they can have little or no sympathy.

Their whole moral nature is sadly perverted, soured and alienated from the true ends and aims of human existence. In the works with which they have been familiar, their minds have found no true and unchanging standard of moral excellence—their passions and impulses no rightful and authoritative law—hence their moral derangement, and indeed the debasement of their entire being. While we are thus free to express the opinion, that the fictitious literature of all ages, from Boccaccio down to Bulwer has, in the main, exerted a pernicious influence intellectually and morally upon society, we can not say this of all works of the imagination. Some have exerted a decidedly moral and elevating influence, and the most important and wholesome truth has been conveyed under the garb of fictitious narrative.

The Great Teacher himself employed allegories and parables to rep-

resent the truths of his own system. If our censure were unqualified, then to be consistent, we must discard the parables of Scripture, the *Paradise Lost*, the *Pilgrim's Progress*, and many other works which are an ornament to our literature, and an honor to the men who wrote them. Some works of the imagination are beautiful—they are magnificent and above all praise. They present religion in the most evangelical and attractive aspect. The mind of the reader is carried along in an ecstasy of interest, over hallowed yet enchanted ground, and is constantly impressed with a sense both of the power and preciousness of religion. Full of exquisite imagery—of noble thoughts happily expressed, and of high and holy principles, they will shed their bright and blessed influence around many a fire-side, imparting courage and constancy to the weak and the wavering.

Says Isaac Taylor: Genuine zest disappears wherever fiction holds sway. I am intending no onslaught on novel-reading. I have no puritanic horror of novels. I have listened to the most of those that were the popular fictions of that by-gone time. I would say this only to the heads of families. Make your choice—freely admit from the circulating library the three volume novels of the season, and then be content to find that all residue of zest is gone as to history, or biography, or science, or anything else that is real and genuine, Christianity included.

Novel-reading is an infatuation which masters souls as surely as dram-drinking does. Many are the melancholy spectacles which one encounters in town—as, for instance, a woman, wasted, worn, in tatters, and near to starvation—this is a sad sight. And so it is sad to meet the well-dressed lady of forty or fifty, with the three greasy-boarded volumes, which are all to be devoured between the noon of to-day and the dawn of to-morrow! The alternative for the individual or for the family is this: novel-reading with its consequent *ennui* and often apathy, or else genuine feeling, employment, with zest, as to whatever is real in life, in history, in science, in poetry and general literature. Fiction of any sort in one scale, and reality in the other, the beam will never stand on the level.

NOVEL-READING AND INSANITY.

Dr. Ray, of the Butler Insane Asylum, in noticing some of the prominent causes of insanity in our day, lays stress on the light reading of the age. It fails to develop the mental health and strength needed to endure the trials of life, and by cultivating a morbid frame

of mind, makes it more susceptible to certain forms of insanity. Hear him:

Generally speaking, there can be no question that excessive indulgence in novel-reading necessarily enervates the mind and diminishes the power of endurance. In other departments of literature, such as biography and history, the mental powers are more or less exercised by the ideas which they convey. Facts are stored up in the memory, hints are obtained for the further pursuit of knowledge, judgments are formed respecting character and actions, original thoughts elicited, a spirit of investigation is excited, and, more than all, life is viewed as it really has been, and must be lived. A mind thus furnished and disciplined is provided with a fund of reserved power to fall back upon when assailed by the adverse forces which, in some shape or other, all of us must expect to encounter. In novel-reading, on the contrary, the mind passively contemplates the scenes that are brought before it, and which, being chiefly addressed to the passions and emotions, naturally please without the necessity of effort or preparation. Of late years a class of books has arisen, the sole object of which is to stir the feelings, not by ingenious plots; not by touching the finer chords of the heart, and skillfully unfolding the springs of action; not by arousing our sympathies for unadulterated, unsophisticated goodness, truth, and beauty, for that would assimilate them to the immortal productions of Shakespeare and Scott; but by coarse exaggeration of every sentiment, by investing every scene in glowing colors, and, in short, by every possible form of unnatural excitement. In all this there is little or no addition to one's stock of knowledge, no element of mental strength is involved, and no one is better prepared by it for encountering the stern realities of life. The sickly sentimentality which craves this kind of stimulus, is as different from the sensibility of a well-ordered mind as the crimson flush of disease from the ruddy glow of high health. A mind that seeks its nutriment from books of this description is closed against the genial influences that flow from real joy and sorrow, and from all the beauty and heroism of common life. A refined selfishness is apt to prevail over every better feeling, and when the evil day comes, the higher sentiments which bind us to our fellow-men by all the ties of benevolence, and justice, and veneration, furnish no support nor consolation.

The specific doctrine that I would inculcate is, that the excessive indulgence in novel-reading, which is a characteristic of our times, is chargeable with many of the irregularities that prevail among us in a degree unknown at any former period.

Xenophen commended the Persians for the prudent education of their children, who would not suffer them to effeminate their minds with amorous stories and idle romances, being sufficiently convinced of the danger of adding weight to the bias of corrupt nature.

In reading romances, women (who are most addicted this way,) do not only learn the evil they should be ignorant of, but also the most delicate way of committing it.

W I T .

HE who endeavors to oblige the company by his good-nature never fails of being beloved; he who strives to entertain it by his good sense never fails of being esteemed; but he who is continually aiming to be witty, generally miscarries of his aim; his aim and intention is to be admired, but it is his misfortune either to be despised or detested—to be despised for want of judgment, or detested for want of humanity. For we seldom admire the wit when we dislike the man. There are a great many to whom the world would be so charitable as to allow them to have a tolerable share of common sense; if they did not set up for something more than common, something very uncommon, bright, and witty. If we would trace the faults of conversation up to their original source, most of them might, I believe, be resolved into this, that men had rather appear shining than be agreeable in company. They are endeavoring to raise admiration instead of gaining love and good-will, whereas the latter is in everybody's power, the former in that of very few.

There is as much difference between wit and wisdom, as between the talent of a buffoon and a statesman. Wit is brushwood, judgment is timber. The one gives the greatest flame, the other yields the durablest heat; and both meeting makes the best fire.

To have the reputation of a wit, is of but little credit, since it is generally applied rather to railery and satire, than pregnancy and beauty of conceit. We sometimes meet with a frothy wit, who would rather lose his best friend than his worst jest. Skill in small wit, like skill in small arms, is very apt to beget a confidence, which may prove fatal in the end. Strong and sharp as a man's wit may be, it is neither so strong as the memory of fools, nor so keen as their resentment. He that has not strength of mind to forgive, is by no

means weak enough to forget, and it is much more easy to do a cruel thing than to say a severe one.

According to the opinion of a distinguished author, good sense is the father of wit, truth his grandfather, and mirth and good humor his chosen companions. As a razor is best whetted in oil, so wit is set sharpest by politeness. The lack of edge in both is discoverable from the offense or pain they give.

True wit is nature to advantage dressed,
What oft was thought, but ne'er so well expressed.

False wit, like false money, only passes current with those who have no means of comparison. A little wit, and a great deal of ill-nature will furnish a man for satire; but the greatest instance of wit, is to commend well.

ARGUMENT.

AVOID argument with a person if he is directly opposite to you; if he has a mind of his own he can not be convinced; and if he has no mind he is a poor convert; it is not only a loss of time, but often of friendship.

With fools argument is passion and vociferation; with politicians it is a majority; with kings it is the sword; with men of sense it is a sound reason.

In reasoning, the best way to gain the cause, and bring the controversy to a speedy determination, is by asking questions, and proceeding still upon the adversary's concessions.

A concluding face put upon an unconcluding argument, is the most contemptible sort of folly.

Jefferson never engaged in dispute; he expressed himself freely to those who sought his society for information or an intelligent comparison of opinion; but his lips were closed in the presence of a disputant. The patience with which he listened to others, and the modest candor with which he expressed himself, usually disarmed the contentious; when they did not, he went no farther. If his views were false, he did not wish them to prevail; if they were true, he felt certain that sooner or later they would prevail. He left no one in doubt as to his opinions.

SELF-RELIANCE.

It appears to have been designed by Creative Providence, that every human being should chiefly depend on the means within himself, for his own subsistence and advancement in the world. Were we to ask a hundred men who from small beginnings have attained a condition of respectability and influence, to what they imputed their success in life, the general answer would be, "It was from being early compelled to think and depend on ourselves."

The oak that stands alone to contend with the tempest's blasts only takes deeper root and stands the firmer for ensuing conflicts; while the forest tree, when the woodman's ax has spoiled its surroundings, sways and bends and trembles and perchance is uprooted. So it is with men. Those who are trained to self-reliance are ready to go out and contend in the sternest conflicts of life; while men who have always leaned for support on those around them, are never prepared to breast the storms of adversity that arise.

Many a young man—and for that matter, many who are older—halts at his outset upon life's battle-field, and falters and faints for what he conceives to be a necessary capital for a start. A few thousand dollars, or hundreds, or "something handsome" in the way of money in his purse, he fancies to be about the only thing needful to secure his fortune. Many a young man would, doubtless, make a good use of such a capital, and to many it has been the beginning of disaster—the unnerving of self-reliance, the pillow of activity, and the rust of every genial, manly virtue and ambition.

The best capital, in nine cases out of ten, a young man can start in the world with, is robust health, sound morals, a fair intelligence, a will to work his way honestly and bravely, and if it be possible, a trade—whether he follows it for a livelihood or not. He can always fall back upon a trade when other paths are closed. Any one who will study the lives of memorable men—apart from the titled, or hereditarily great—will find that a large majority of them rose from the ranks, with no capital for a start, save intelligence, energy, industry, and a will to rise and conquer. In the mechanic and artizan pursuits, in commerce, in agriculture, and even in the paths of literature, science and art, many of the greatest names sprung from poverty and obscurity. Dr. Johnson made himself illustrious by his intellect and industry—so did Franklin, and so have multitudes whose memories are renowned.

The greatest heroes of the battle-field—as Napoleon, Hannibal,

Cromwell—some of the greatest statesmen and orators, ancient and modern—as Demosthenes, Chatham, Burke, and our own Webster and Clay—could boast no patrician advantages, no capital in gold, to start with. The grandest fortunes ever accumulated or possessed on earth, were and are, the fruit of endeavor that had no capital to begin with save energy, intellect, and the will. From Cræsus down to Astor, the story is the same—not only in the getting of wealth, but also in the acquirement of various eminence—those men have won most, who relied most upon themselves.

The path of success in business is invariably the path of common sense. Notwithstanding all that is said about “lucky hits,” the best kind of success in every man’s life is not that which comes by accident. The only “good time coming” we are justified in hoping for, is that which we are capable of making for ourselves. The fable of the labors of Hercules is indeed the type of all human doing and success. Every youth should be made to feel that if he would get through the world usefully and happily, he must rely mainly upon himself and his own independent energies. Making a small provision for young men is hardly justifiable; and it is of all things the most prejudicial to themselves. They think what they have much larger than it really is; and they make no exertion. The young should never hear any language but this: ‘You have your own way to make, and it depends upon your own exertions whether you starve or not.’

One of the best lessons a father can give his son is this: Work; strengthen your moral and mental faculties, as you would strengthen your muscles by vigorous exercise. Learn to conquer circumstances; you are then independent of fortune. The men of athletic minds, who have left their mark on the years in which they lived, were all trained in a rough school. They did not mount their high position by the help of leverage; they leaped into chasms, grappled with the opposing rocks, avoided avalanches, and, when the goal was reached, felt that but for the toil that had strengthened them as they strove, it could never have been attained. Be your own right hand man. Every man is the architect of his own fortune.

People who have been bolstered up and levered all their lives, are seldom good for anything in a crisis. When misfortune comes, they look around for somebody to cling to, or lean upon. If the prop is not there, down they go. Once down, they are as helpless as capsized turtles, or unhorsed men in armor, and they can not find their feet again without assistance. Such silken fellows no more resemble self-made men, who have fought their way to position, making difficulties

their stepping-stones, and deriving determination from their defeat, than vines resemble oaks, or spluttering rushlights the stars of heaven. Efforts persisted in to achievements train a man to self-reliance; and when he has proven to the world that he can trust himself, the world will trust him. We say, therefore, that it is unwise to deprive young men of the advantages which result from energetic action, by "boosting" them over obstacles which they ought to surmount alone. No one ever swam well who placed his confidence in a cork jacket; and if, when breasting the sea of life, we cannot buoy ourselves up and try to force ourselves ahead by dint of our own energies, we are not salvage; and it is of little consequence whether we "sink or swim, survive or perish."

It is not good for human nature to have the road of life made too easy. Better to be under the necessity of working hard and faring meanly, than to have everything done ready to our hand, and a pillow of down to repose upon. Indeed, to start in life with comparatively small means seems so necessary as a stimulus to work, that it may almost be set down as one of the essential conditions to success in life. Hence, an eminent judge, when asked what contributed most to success at the bar, replied, "Some succeed by great talent, some by high connections, some by miracle, but the majority by commencing without a shilling." So it is a common saying that the men who are most successful in business are those who begin the world in their shirt-sleeves; whereas those who begin with fortunes generally lose them. Necessity is always the first stimulus to industry; and those who conduct it with prudence, perseverance, and energy will rarely fail. Viewed in this light, the necessity of labor is not a chastisement, but a blessing—the very root and spring of all that we call progress in individuals, and civilization in nations. It may, indeed, be questioned whether a heavier curse could be imposed on man than the complete gratification of all his wishes without effort on his part, leaving nothing for his hopes, desires or struggles. The feeling that life is destitute of any motive or necessity for action, must be of all others the most distressing and the most insupportable to a rational being. The Marquis de Spinola asking Sir Horace Vere what his brother died of, Sir Horace replied, "He died, sir, of having nothing to do." "Alas!" said Spinola, "that is enough to kill any general of us all."

The men who stand boldly for the defense of the truth, in the midst of the flood of errors that surround them, are not the gentlemen of lily fingers who have been rocked in the cradle of indulgence and caressed in the lap of luxury; but they are men whom necessity has

called from the shade of retirement, to contend under the scorching rays of the sun, with the stern realities of life with all its vicissitudes. It is good for a man that he bear the yoke in his youth.

Don't rely upon friends. Don't rely upon the good name of your ancestors. Thousands have spent the prime of life in the vain hope of those whom they called friends; and thousands have starved because they had a rich father. Rely upon the good name which is made by your own exertions, and know that better than the best friend you can have is unquestionable determination, united with decision of character. And remember that without God's blessing you cannot truly prosper. In all thy ways acknowledge Him, and He will direct thy paths. Nothing would fortify us more against all manner of accidents, than the remembrance of this maxim, that we can never be hurt but by ourselves. If our reason be what it ought, and our actions according to it, we are invulnerable. 'Heaven helps those who help themselves.'

Depend not on the stores of others. Tax a neighbor's good offices as seldom as possible. "Do not ride a free horse to death" is trite but good advice. Rely upon your own resources as much as possible. Human nature delights in novelties, hence look out that an opportunity for your neighbor to serve you is a novelty.

CHARACTER.

THE crown and glory of life is character. It is the noblest possession of a man, constituting a rank in itself, and an estate in the general good-will; dignifying every station, and exalting every position in society. It exercises a greater power than wealth, and secures all the honor without the jealousies of fame. It carries with it an influence which always tells; for it is the result of proved honor, rectitude and consistency,—qualities which, perhaps more than any other, command the general confidence and respect of mankind.

Character is human nature in its best form. It is moral order embodied in the individual. Men of character are not only the conscience of society, but in every well-governed state they are its best motive power; for it is moral qualities, in the main, which rule the world. Even in war, Napoleon said, the moral is to the physical as ten to one. The strength, the industry, and the civilization of nations, all depend upon individual character; and the very founda-

tions of civil authority rest upon it. Laws and institutions are but its outgrowth. In the just balance of nature, individuals, and nations, and races will obtain just so much as they deserve, and no more. And as effect finds its cause, so surely does quality of character amongst a people produce its benefiting results.

Though a man have comparatively little culture, slender abilities, and but small wealth, yet, if his character be of sterling worth, he will always command an influence, whether it be in the workshop, the counting-house, the mart, or the senate. You may admire men of intellect; but something more is necessary before you will trust them. We sometimes ask the assistance of men of genius, but we prefer to follow the guidance of men of character. Sidney Smith said of Francis Horner, a member of the English House of Commons, that "the Ten Commandments were stamped upon his countenance." His history is calculated to inspire every right-minded youth. He died at the age of thirty-eight, possessed of greater public influence than any other private man in England, and admired, beloved, trusted and deplored by all, except the heartless or the base. No greater homage was ever paid in parliament to any deceased member. Now let every young man ask—How was this attained? By rank? He was the son of an Edinburgh merchant. By wealth? Neither he nor any of his relations, ever had a superfluous sixpence. By office? He held but one, and only for a few years, of no influence, and with very little pay. By talents? His were not splendid, and he had no genius. Cautious and slow, his only ambition was to be right. By eloquence? He spoke in calm, good taste, without any of the oratory that either terrifies or seduces. By any fascination of manner? His was only correct and agreeable. By what, then, was it? Merely by sense, industry, good principles, and a good heart—qualities which no well-constituted mind need ever despair of attaining. It was the force of his character that raised him, and this character not impressed upon him by nature, but formed out of no peculiarly fine elements by himself.

Franklin, also, attributed his success as a public man, not to his talents or his powers of speaking—for these were but moderate—but to his known integrity of character. "Hence, it was," he says, "that I had so much weight with my fellow citizens. I was but a bad speaker, never eloquent, subject to much hesitation in my choice of words, hardly correct in language, and yet I generally carried my point." Character creates confidence in men in every station of life. It was said of the first Emperor Alexander of Russia, that his personal char-

acter was equivalent to a constitution. During the wars of the Fronde, Montaigne was the only man among the French gentry who kept his castle gates unbarred; and it was said of him, that his personal character was worth more to him than a regiment of horse.

That character is power is true in a much higher sense than that knowledge is power. Mind without heart, intelligence without conduct, cleverness without goodness, are powers in their way, but they may be powers only for mischief. We may be instructed or amused by them, but it is sometimes as difficult to admire them as it would be to admire the dexterity of a pickpocket or the horsemanship of a highwayman.

Truthfulness, integrity and goodness,—qualities that hang not on any man's breath,—form the essence of manly character, or, as one of our old writers has it, "that inbred loyalty unto virtue which can serve her without a livery." He who possesses these qualities, united with strength of purpose, carries with him a power which is irresistible. He is strong to do good, strong to resist evil, and strong to bear up under difficulty and misfortune. When Stephen of Coloma fell into the hands of his base assailants, and they asked him, in derision, "Where is now your fortress?" "Here," was his bold reply, placing his hand upon his heart. It is in misfortune that the character of the upright man shines forth with the greatest luster; and, when all else fails, he takes stand upon his integrity and his courage.

Every man is bound to aim at the possession of a good character, as one of the highest objects of his life. The very effort to secure it by worthy means will furnish him with a motive for exertion; and his idea of manhood, in proportion as it is elevated, will steady and animate his motive. It is well to have a high standard of life, even though we may not be able altogether to realize it. "The youth," says Disraeli, "who does not look up will look down; and the spirit that does not soar is destined perhaps to grovel." He who has a high standard of living and thinking will certainly do better than he who has none at all. "Pluck at a gown of gold," says the Scotch proverb, "and you may get a sleeve o't." Whoever tries for the highest results can not fail to reach a point far in advance of that from which he started; and though the end accomplished may fall short of that proposed, still, the very effort to rise, of itself can not fail to prove permanently beneficial.

There are many counterfeits of character, but the genuine article is difficult to be mistaken. Some, knowing its money value, would assume its disguise for the purpose of imposing upon the unwary. Col-

onel Charteris said to a man distinguished for his honesty, "I would give a thousand pounds for your good name." "Why?" "Because I could make ten thousand by it," was the rogue's reply.

Integrity in word and deed is the backbone of character; and loyal adherence to veracity its most prominent characteristic. The groundwork of all manly character is veracity. That virtue lies at the foundation of everything solid. How common it is to hear parents say, "I have confidence in my child so long as he speaks the truth. He may have many faults, but I know he will not deceive me." It is a lawful and just ground to build upon. And that is a beautiful confidence. Whatever errors temptation may betray a child into, so long as brave open truth remains, there is something to depend on; — there is another ground — there is substance at the center. Men of the world feel so about one another. They can tolerate and forbear so long as their erring brother is true. Ordinary commerce can hardly proceed a step without a good measure of it. If we can not believe what others say to us, we can not act at all. Truth is common interest. When we defend it, we defend the basis of all social order. When we vindicate it, we vindicate our own foot-hold. When we plead for it, it is like pleading for the air of health we breathe. When you undertake to benefit a lying man, it is like putting your foot into the mire.

There is truthfulness in action as well as in words, which is essential to uprightness of character. A man must really be what he seems or purposes to be. Always endeavor to be really what you would wish to appear. Every man who respects himself, and values the respect of others, will carry out this maxim in act: — doing honestly what he proposes to do — putting the highest character into his work, scamping nothing, but priding himself upon his integrity and conscientiousness. Men whose acts are at direct variance with their words, command no respect, and what they say has but little weight; even truths, when uttered by them, seem to come blasted from their lips.

The true character acts rightly, whether in secret or in the sight of men. That boy was well trained who, when asked why he did not pocket some pears, for nobody was there to see him, replied, "Yes, there was: I was there to see myself; and I don't intend ever to see myself do a dishonest thing." This is a simple but not inappropriate illustration of principle, or conscience, dominating in the character, and exercising a noble protectorate over it; not merely a passive influence, but an active power, regulating the life. Such a

principle goes on moulding the character hourly and daily, growing with a force that operates every moment. Without this dominating influence, character has no protection, but is constantly liable to fall away before temptation; and every such temptation succumbed to, every act of meanness or dishonesty, however slight, causes self-degradation. It matters not whether the act be successful or not, discovered or concealed, the man is no longer the same, but another person; and he is pursued by a secret uneasiness, by self-reproach, or the workings of what we call conscience, which is the inevitable doom of the guilty.

Strength of character consists of two things:—power of will and power of self-restraint. It requires two things, therefore, for its existence—strong feelings and strong command over them. Now it is here we make a great mistake; we mistake strong feelings for strong character. A man who bears all before him, before whose frown domestics tremble, and whose bursts of fury make the children of the household quake;—because he has his will obeyed, and his own way in all things, we call him a strong man. The truth is, that is the weak man; it is his passions that are strong; he, mastered by them is weak. You must measure the strength of a man by the power of the feelings he subdues, not by the power of those which subdue him. And hence composure is very often the highest result of strength.

Did we never see a man receive a flagrant insult, and only grow a little pale, and then reply quietly? This is a man spiritually strong. Or did we never see a man in anguish stand, as if carved out of solid rock, mastering himself? Or one bearing a hopeless daily trial remain silent, and never tell the world what cankered his home peace? That is strength. He who, with strong passions, remains chaste; he who, keenly sensitive, with manly powers of indignation in him, can be provoked, and yet restrain himself and forgive—these are the strong men, the spiritual heroes.

The truest criterion of a man's character and conduct, is, invariably, to be found in the opinion of his nearest relations, who, having daily and hourly opportunities of forming a judgment of him, will not fail in doing so. It is a far higher testimony in his favor, for him to secure the esteem and love of a few individuals within the privacy of his own home, than the good opinion of hundreds in his immediate neighborhood, or that of ten times the number residing at a distance. In fact, next to a close and impartial self-scrutiny, no question comes so near the truth, as for a man to ask himself, "What is thought of

me by the familiar circle of my own fireside?" Would that all remembered this!

The chief outlines of the human character are drawn within the first ten years of life. Character is what a man truly is, and what his reputation soon will be. In trifles, infinitely clearer than in great deeds, actual character is displayed. The differences of character are never more distinctly seen than in times when men are surrounded by difficulties and misfortunes. A good character is a fortune.

CHEERFULNESS.

CHEERFULNESS arises from various causes : from health ; but it is not dependent upon health ; from good fortune : but it does not arise solely from that ; from honor and position, and a tickled pride and vanity : but it is quite independent of these. The truth is, it is a brave habit of the mind ; a prime proof of wisdom ; capable of being acquired, and of the very greatest value not only to one's self, but to the whole world besides. A cheerful man is pre-eminently a useful man.

A spirit of cheerfulness should be encouraged in our youth if we would wish to have the benefit of it in our old age. Time will make a generous wine more mellow, but turn that which is *early on the fret* to vinegar. There is more real virtue in goodness, kindness, and cheerfulness of heart, than in all the cold, canting solemnity that was ever put on as a mask for selfishness. A cheerful heart paints the world as it finds it, like a sunny landscape ; the morbid mind depicts it like a sterile wilderness, pallid with thick vapors, and as dark as the "Shadow of Death." It is the mirror, in short, on which it is caught, which lends to the face of nature the aspect of its own turbulence or tranquility. As the river flows out from under the shadow of the willow that bends over its waters, so the cheerful spirit flashes out from the cloud without bearing it along.

One of the most valuable, and one of the most infectious examples which can be set before the young, is that of cheerful working. Cheerfulness gives elasticity to the spirit. Spectres fly before it ; difficulties cause no despair, for they are encountered with hope, and the mind acquires that happy disposition to improve opportunities which rarely fails of success. The fervent spirit is always a healthy and happy spirit ; working cheerfully itself, and stimulating others to

work. It confers a dignity on even the most ordinary occupations. The most effective work, also, is always the full-hearted work—that which passes through the hands or the head of him whose heart is glad. Hume was accustomed to say that he would rather possess a cheerful disposition—inclined always to look at the bright side of things—than with a gloomy mind to be the master of an estate of ten thousand a year. It has been said that the lively and sprightly are as open books, with the leaves turned down at the notable passages. Their souls sit at the windows of their eyes, seeing and to be seen.

If the waves threaten to engulf you, don't add by your tears to the amount of water. If the sun is going down, look up to the stars; if the earth is dark, keep your eyes on heaven. With God's presence and God's promise, a man or child may be cheerful. Everything, animate and inanimate, turns to the sunbeams. We instinctively avoid cloudy days, and cloudy faces. He who murmurs at his lot is like one baring his feet to tread upon thorns. Some people think black is the color of Heaven, and that the more they make their faces look like night the holier they are. Let not the stream of your life always be a murmuring stream.

“Care to our coffin adds a nail no doubt,
While every grin so merrily draws one out.”

There is no little repining on the part of many worthy people, which must be attributed chiefly to a habit of forgetting some well known truths. It would be good for all to remember that in the long run, the things which now fret and annoy will all be seen to be parts of a plan of infinite benevolence. The evils we lament will be turned into agencies for good, and the sorrows we experience will eventuate in future joys. That life is the sweetest which is passed in extracting honey even from the bitterest adversities; and he is the wisest man who can most heartily confide in the rectitude of Providence, and in the final supremacy of truth and right. In the long run, that christian will come out well who works cheerfully, heartily, hopefully, without wasting his energies upon vain regrets and passionate murmurings. The birds sing in the storm; why may not the child of God rejoice too, even though the passing clouds lower?

There is no greater every-day virtue than cheerfulness. This quality in man among men, is like sunshine to the day, or gentle, renewing moisture to parched herbs. The light of a cheerful face diffuses itself, and communicates the happy spirit that inspires it. The sourest temper must sweeten in the atmosphere of continuous good humor.

As well might fog, and cloud, and vapor, hope to cling to the sun-illuminated landscape, as the blues and moroseness to combat jovial speech and exhilarating laughter. Be cheerful, always. There is no path but will be easier traveled, no load but will be lighter, no shadow on heart or brain but will lift sooner in presence of a determined cheerfulness. It may at times seem difficult for the happiest tempered to keep the countenance of peace and content, but the difficulty will vanish when we truly consider that sullen gloom and passionate despair do nothing but multiply thorns and thicken sorrows. Ill comes to us as providentially as good—and is a good, if we rightly apply its lessons; why not, then, cheerfully accept the ill, and thus blunt its apparent sting? Cheerfulness ought to be the fruit of philosophy—much more of Christianity. What is gained by peevishness and fretfulness—by perverse sadness and sullenness? If we are ill, let us be cheered by the trust that we shall soon be in health—if misfortune befall us, let us be cheered by hopeful visions of better fortune—if death robs us of the dear ones, let us be cheered by the thought that they are only gone before, to the blissful bowers where we shall all meet, to part no more forever.

Cultivate cheerfulness, if only for personal profit. You will do and bear every duty and burthen better by being cheerful. It will be your consoler in solitude, your passport and commendator in society. You will be more sought after, more trusted and esteemed for your steady cheerfulness. The bad, the vicious, may be boisterously gay and vulgarly humorous, but seldom or never truly cheerful. Genuine cheerfulness is an almost certain index of a happy mind and a pure, good heart.

I once heard a young lady say to an individual, "Your countenance to me is like the shining sun, for it always gladdens me with a cheerful look." A merry or cheerful countenance was one of the things which Jeremy Taylor said his enemies and persecutors could not take away from him. There are some persons who spend their lives in this world as they would spend their time if shut up in a dungeon. Everything is made gloomy and forbidding. They go mourning and complaining from day to day, that they have so little, and are constantly anxious lest what little they have should escape out of their hands. They look always upon the dark side, and can never enjoy the good that is present, for the evil that is to come. This is not religion. Religion makes the heart cheerful, and when its large and benevolent principles are exercised, men will be happy in spite of themselves.

The industrious bee does not stop to complain that there are so

many poisonous flowers and thorny branches in his road, but buzzes on, selecting the honey where he can find it, and passing quietly by the places where it is not. There is enough in this world to complain about and find fault with, if men have the disposition. We often travel on a hard and uneven road, but with a cheerful spirit and a heart to praise God for his mercies, we may walk therein with great comfort and come to the end of our journey in peace.

A cheerful life must be a busy one. And a busy life cannot well be otherwise than cheerful. Frogs do not croak in running water. And active minds are seldom troubled with gloomy forebodings. They come up only from the stagnant depths of a spirit unstirred by generous impulses or the blessed necessities of honest toil.

The cheerful are the busy; when trouble knocks at your door or rings the bell, he will generally retire if you send him word "engaged." God bless the cheerful person—man, woman or child, old or young; illiterate or educated, handsome or homely. Over and above every other social trait stands cheerfulness. What the sun is to nature, what the stars are to night, what God is to the stricken heart which knows how to lean upon Him, are cheerful persons in the house and by the wayside. Man recognizes the magic of a cheerful influence in woman more quickly and more willingly than the potency of dazzling genius—of commanding worth—or even of enslaving beauty.

What shall we say by way of commending that sweet cheerfulness by which a good and sensible woman diffuses the oil of gladness in the proper sphere of home. The best specimens of heroism in the world were never gazetted. They play their *role* in common life, and their reward is not in the admiration of spectators, but in the deep joy of their own conscious thoughts. It is easy for a housewife to make arrangements for an occasional feast; but let me tell you what is greater and better: amid the weariness and cares of life; the troubles, real and imaginary, of a family; the many thoughts and toils which are requisite to make the family home of thrift, order and comfort; the varieties of temper and cross-lines of taste and inclination which are to be found in a large household—to maintain a heart full of good nature and a face always bright with cheerfulness, this is a perpetual festivity. We do not mean a mere superficial simper, which has no more character in it than the flow of a brook, but that exhaustless patience, and self-control, and kindness, and tact which spring from good sense and brave purposes. Neither is it the mere reflection of prosperity, for cheerfulness, then, is no virtue. Its best exhibition is in the dark back-ground of real adversity. Affairs as-

sume a gloomy aspect, poverty is hovering about the door, sickness has already entered, days of hardship and nights of watching go slowly by, and now you see the triumph of which we speak. When the strong man has bowed himself, and his brow is knit and creased, you will see how the whole life of a household seems to hang on the frailer form, which, with solitudes of her own, passing, it may be, under "the sacred primal sorrow of her sex," has an eye and an ear for every one but herself, suggestive of expedients, hopeful in extremities, helpful in kind words and affectionate smiles, morning, noon and night, the medicine, the light, the heart of a whole household. God bless that bright, sunny face! says many a heart before me, as he recalls that one of mother, wife, sister, daughter, which has been to him all that my words have described.

We can not all of us be beautiful, but the pleasantness of a good-humored look is denied to none. We can all of us increase and strengthen the family affections and the delights of home. A cheerful face is nearly as good for an invalid as healthy weather. Life may be merry as well as useful. We always admire the answer of the man who, when asked how old he was, replied, just forty years; but if you count by the fun I've seen, I am at least eighty. When the celebrated Hayden was asked how all his sacred music was so cheerful, the great composer replied: I can not make it otherwise. I write according to the thoughts I feel; when I think upon God, my heart is so full of joy that the notes dance and leap as it were from my pen; and since God has given me a cheerful heart, it will be pardoned in me that I serve him with a cheerful spirit. The greatest and most brilliant conceptions have been the births of a genial moment, and not the wooden carving of logical toil.

ECONOMY.

WHAT is economy? Not meanness; not avarice. It is not a grasping, grinding, mercenary spirit, which hoards and keeps and neither enjoys nor gives, and while it does not waste, it does not even use. This is a love of gain, for its own sake, which sees no other use for gold than to be kept. This is a passion that makes fools of its possessors, and profits nobody. A slack hand is better than a miserly hand. Both are bad. A diligent hand, a prudent economy, makes the best possible use of what it has—turns everything to best ac-

count—eats, drinks, wears, and gives away all that is necessary, all the circumstances really demand or will allow, and saves the rest.

Economy is the parent of integrity, of liberty, and of ease, and the sister of temperance, of cheerfulness and of health; and profuseness is a cruel and crafty demon, that generally involves her followers in dependence and debts, that is, fetters them with “irons that enter their souls.” Economy is one of three sisters, of whom the other and less reputable two are avarice and prodigality. She alone keeps the safe and straight path, while avarice sneers at her as profuse, and prodigality scorns at her as penurious. To the poor she is indispensable; to those of moderate means she is found the representative of wisdom; and although some moralist has said that, at the hearth of the opulent, economy takes the form of a vice, she is perhaps as great a virtue there as elsewhere. Her very name signifies the law or rule of a house, and her presence is as much required in the palace as in the cottage. The prince who despises her and outruns his means is at once slave and knave. The honest man who lives within his income, and owes no man anything, is your only true king. It is he alone who makes the golden discovery that economy is the mother of liberality. In the olden time there were sumptuary laws which, while they attached a penalty to extravagance, set a fine on the man who let a year pass by without asking a friend to dinner.

True economy is something better than stinginess. Economy, joined to industry and sobriety is a better outfit for business than a dowry. Take care to be an economist in prosperity; and there is no fear of your having to be one in adversity. Do not be extravagant. The man who will live above his present circumstances, is in danger of living in a little time much beneath them. If you buy what you have no occasion for, you will soon have to sell what you can not spare. There is no exception to the rule of three. As your income is to your expenditure, so will the amount of your debts be to the cash in your pocket. He is poor whose expenses exceed his income. Money and time have both their value. He who makes a bad use of one will never make a good use of the other.

Economizing one's means with the mere object of hoarding is a very mean thing; but economizing for the purpose of being independent is one of the soundest indications of manly character; and when practiced with the object of providing for those who are dependent upon us, it assumes quite a noble aspect. A good father gave his son this advice: “While I wish you to be comfortable in every respect, I can not too strongly inculcate economy. It is a necessary virtue to all;

and however the shallow part of mankind may despise it, it certainly leads to independence, which is a grand object to every man of a high spirit. The following lines of Burns contain the right idea:

“Not for to hide it in a hedge,
Nor for a train attendant,
But for the glorious privilege
Of being independent.”

Every man ought so to contrive as to live within his means. This practice is of the very essence of honesty. For if a man do not manage honestly to live within his own means, he must necessarily be living dishonestly upon the means of somebody else. Those who are careless about personal expenditure, and consider merely their own gratification, without regard for the comfort of others, generally find out the real uses of money when it is too late. Though by nature generous, these thriftless persons are often driven in the end to do very shabby things. They dawdle with their money as with their time; draw bills upon the future; anticipate their earnings; and are thus under the necessity of dragging after them a load of debts and obligations which seriously affect their action as free and independent men. The loose cash which many persons throw away uselessly, and worse, would often form a basis of fortune and independence for life. These wasters are their own worst enemies, though generally found among the ranks of those who rail at the injustice of “the world.” But if a man will not be his own friend, how can he expect that others will? Orderly men of moderate means have always something left in their pockets to help others; whereas your prodigal and careless fellows who spend all never find an opportunity for helping anybody. It is poor economy, however to be a scrub. Narrow-mindedness in living and in dealing is generally short-sighted, and leads to failure. The penny soul, it is said, never came to two-pence. Generosity and liberality, like honesty, prove the best policy after all. Though Jenkinson, in the “Vicar of Wakefield,” cheated his kind-hearted neighbor Flamborough in one way or another every year, “Flamborough,” he says, “has been regularly growing in riches, while I have come to poverty and a jail.” And practical life abounds in cases of brilliant results from a course of generous and honest policy.

We don't like stinginess, we don't like economy, when it comes down to rags and starvation. We have no sympathy with the notion that the poor man should hitch himself to a post and stand still, while

the rest of the world moves forward. It is no man's duty to deny himself every amusement, every recreation, every comfort, that he may get rich. It is no man's duty to make an iceberg of himself, to shut his eyes and ears to the sufferings of his fellows, and to deny himself the enjoyment that results from generous actions, merely that he may hoard wealth for his heirs to quarrel about. But there is an economy which is every man's duty, and which is especially commendable in the man who struggles with poverty—an economy which is consistent with happiness, and which must be practiced if the poor man would secure independence. It is almost every man's privilege, and it becomes his duty, to live within his means; not to, but within them. Wealth does not make the man, we admit, and should never be taken into the account in our judgment of men; but competence should always be secured, when it can be, by the practice of economy and self-denial only to a tolerable extent. It should be secured, not so much for others to look upon, or to raise us in the estimation of others, as to secure the consciousness of independence, and the constant satisfaction which is derived from its acquirement and possession.

A man is rich in proportion to the number of things he can afford to let alone. What the world calls avarice is oftentimes no more than compulsory economy: and even a willful penuriousness is better than a wasteful extravagance. A just man, being reproached with parsimony, said that he would rather enrich his enemies after his death than borrow of his friends in his lifetime. A man is not so likely to deserve or win the blessing of his children by giving them much as by teaching them how to live on little. Economy in our affairs has the same effect upon our fortunes that good breeding has on our conversation. He that hath no money needeth no purse. Be rather bountiful, than expensive. If your means suit not your ends, pursue those ends which suit your means. Feel a noble pride in living within your means, then you will not be hustled off to a cheerless hospital in your last sickness.

The first part of economy is to do your peculiar work; the second to do it by system. "It has been computed," says Dr. Franklin, "by some political arithmetician, that if every man and woman would work for four hours each day on something useful, that labor would be sufficient to procure all the necessaries and comforts of life, want and misery would be banished out of the world, and the rest of the twenty-four hours might be leisure and pleasure." Franklin once made to a young man the following offer: "Make a full estimate of

all you owe, and of all that is owing you. Reduce the same to a note. As fast as you can collect pay over to those you owe:—if you can not collect, renew your note every year and get the best security you can. Go to business diligently; be very economical in all things; discard all pride; be industrious; waste no idle moments; be faithful in your duty to God, by regular and hearty prayer morning and evening; attend to church and meeting regularly every Sunday; and do unto all men as you would they should do unto you. If you are too needy in circumstances to give to the poor, do whatever else may be in your power for them cheerfully, but if you can, always help the worthy poor and unfortunate. Pursue this course diligently and sincerely for seven years, and if you are not happy, comfortable and independent in your circumstances, come to me and I will pay your debts.

We are ruined, not by what we really want, but by what we think we do; therefore never go abroad in search of your wants; if they be real wants, they will come home in search of you; for he that buys what he does not want, will soon want what he can not buy. It is foolish to lay out money in purchase of repentance.

Lawrence, the millionaire merchant of Boston, said, I made fifteen hundred dollars the first year, and more than four thousand the second. Probably had I made four thousand the first year, I should have failed the second or third year. I practiced a system of rigid economy, and never allowed myself to spend a fourpence for unnecessary objects until I had acquired it. Silas Wright, with his estate of four thousand dollars, was really wealthier than many others are with one hundred thousand dollars. He owed no man anything; he met his obligations with the utmost promptness, and never indulged in any luxury he could not pay for. He was a model of republican simplicity. It should also be understood that he was not mean in saving money. There was something glorious in witnessing a great statesman like Silas Wright never asking a pecuniary favor, or even accepting one, yet possessing only an income that could support him and his wife in frugality. When he was elected Governor of the great State of New York, he was known to be too poor to furnish his house. His rich friends got together, and, without his knowledge, made up a subscription, which was tendered to him as a gift, in order to furnish his mansion. This he respectfully but kindly declined, saying, with a true Roman grandeur, that he could not consent to receive such a favor from any one—even from his most esteemed friends; he was elected by the people to be Governor of the State

of New York, and he considered it his imperative duty to live on whatever income the people had appended to that office; and he did live on that income while he was Governor, in good style, but with no ostentation. Such an example on the part of so eminent a man as he was, is one of those precious legacies that the young men of the present day should bear in mind—as no true greatness can ever be achieved so long as they are the pecuniary slaves of even their nearest friends. When a public man receives favors that he can not repay, he loses that sturdy independence so essential to usefulness and an enduring popularity. Live within your income, is more important to one who aims to be an influential and useful statesman, than any other maxim.

Simple industry and thrift will go far toward making any person of ordinary working faculty comparatively independent in his means. Almost every working man may be so, provided he will carefully husband his resources and watch the little outlets of useless expenditure. A penny is a very small matter, yet the comfort of thousands of families depends upon the proper saving and spending of pennies. If a man allows the little pennies, the result of his hard work, to slip out of his fingers—some to the beer-shop, some this way and some that—he will find that his life is little raised above one of mere animal drudgery. On the other hand, if he take care of the pennies,—putting some weekly into a benefit society or an insurance fund, others into a savings-bank, and confiding the rest to his wife to be carefully laid out, with a view to the comfortable maintenance and education of his family,—he will soon find that his attention to small matters will abundantly repay him, in increasing means, growing comfort at home, and a mind comparatively free from fears as to the future. If a working man have high ambition and possess richness in spirit,—a kind of wealth which far transcends all mere worldly possessions,—he may not only help himself, but be a profitable helper of others in his path through life.

What is frugality in the rich, may be extravagance in the poor; and on the contrary what is mere frugality in the poor, may be parsimony in the rich. Frugality is not incompatible with charity; for though sparing to self, it may be liberal to others, but parsimony denies both self and others.

When one is blessed with good sense, and fair opportunities, this spirit of economy is one of the most beneficial of all secular gifts, and takes high rank among the minor virtues. It is by this mysterious power that the loaf is multiplied, that using does not waste, that lit-

tle becomes much, that scattered fragments grow to unity, and that out of nothing, or next to nothing, comes the miracle of something! Economy is not merely saving, still less, parsimony. It is foresight and arrangement. It is insight and combination. It is a subtle philosophy of things by which new uses, new compositions are discovered. It causes inert things to labor, useless things to serve our necessities, perishing things to renew their vigor, and all things to exert themselves for human comfort. Economy is generalship in little things. We know men who live better on a thousand dollars a year than others upon five thousand. We know very poor persons who bear about with them in everything a sense of fitness and nice arrangement, which make their life artistic. There are day-laborers who go home to more real comfort of neatness, arrangement, and prosperity, in their single snug room, than is found in the lordly dwellings of many millionaires. And blessings be on their good angels of economy, which wastes nothing, and yet is not sordid in saving; that lavishes nothing, and is not parsimonious in giving; that spreads out a little with the blessings of taste upon it, which, if it does not multiply the provision, more than makes it up in the pleasure given. Let no man despise economy.

When Christ had miraculously fed thousands with five loaves, he said to his disciples, "Gather up the fragments that remain, so that nothing be lost." How strange this command, after such a display of power! They were to fill their baskets with broken bits of bread, though he whom they followed could make enough for thousands by the touch or the mere volition of his creative energy. The lesson is manifest. Economy is a Christian duty. We are not to expect miracles while we can succeed by a faithful use of means; we are to save even the fragments, because God has made them.

What an economist is Nature, so made by God! She economizes even the light that she so immensely possesses; catches it on the moon as a candle, after the sun has gone down, as we say, when he is but rising on other lands, and sends it inconceivably far to us from the stars. She economizes heat, equalizing it for the life and health of the whole world, by currents in the air and ocean of the electric fluid. She economizes water, to answer a thousand successive, important purposes, in a thousand different places, with the same drop. How nicely and carefully she sifts out its minutest portions from the briny sea, to cleanse the air and revive the plants at this season, to fill the springs, and paint the sky, and support all human life! How, with her elemental agencies, she crumbles and bears down the barren

rock from the mountains and the hills, to fertilize for boundless crops the valley and the grain! How she makes the ashes even of the dead spring into grass, and blossom into flowers! How, applying the same economy to crude mineral, from the very gravel in the ground she distils a curious, delicate wash to protect the tender stalks of the growing grain: though you may not think what perhaps cuts your hand to bleeding in this varnish of flint.

How she saves every hair, particle, nail paring, and exhalation to turn it to some account. How she converts ice, and the snow that manures the poor man's ground, into harvests of corn and wheat! How she nourishes her *vegetable* offspring, so that her *animal* may not hunger! The roots of a shrub, thirsty for a supply that had been drawn aside by an artificial channel, have been known, in their resolution not to be defrauded, to find their way to the aqueduct under ground, and bore a hole through its soft wooden plug, that every fibre might drink its fill, as was divinely intended. To one who looks with a careless view on nature, it seems as if everything with her was in extravagant excess. We quote the line about "many a flower born to blush unseen," and we talk of the floods that are poured away to no purpose. But a closer inspection corrects this error, and shows how frugal her utility, and perfect her order, enough, but "no room to insert a particle," however art may re-arrange her forms to educate and give scope to human powers.

ACTIONS.

THE only thing in which we can be said to have any property, are our *actions*. Our thoughts may be bad yet produce no poison; they may be good, yet produce no fruit. Our riches may be taken from us by misfortune, our reputation by malice, our spirits by calamity, our health by disease, our friends by death. But our actions must follow us beyond the grave; with respect to them *alone*, we cannot say we shall carry nothing with us when we die, neither that we shall go naked out of the world. Our actions must clothe us with an immortality, loathsome or glorious; these are the only *title-deeds* of which we can not be disinherited; they will have their full weight in the balance of eternity, when everything else is as nothing; and their value will be confirmed and established by those two sure and stateless destroyers of all other things—Time and Death.

Character is formed by a course of actions, and not actions by character. A person can have no character before he has had actions. Though an action be ever so glorious in itself, it ought not to pass for great, if it be not the effect of wisdom and good design. Great actions carry their glory with them as the ruby wears its colors. Whatever be your condition or calling in life, keep in view the whole of your existence. Act not for the little span of time allotted you in this world but act for eternity. Yonder lies one who has gone to the silent shore; he realizes now that his acts are irrevocable—he feels what beforehand he fancied—that time can not alter them, that eternity can not change them. Beside the bier there stands a weeping friend; and too late he finds that tears can not efface his acts, that repentance can not amend them; too late he finds that every act of harshness, every bitter word, every sarcastic expression, lives forever; too late he finds that unseen wings have borne his deeds beyond the flight of love, and he can never recall them to his embrace again. We are not acting for the present, but working for eternity. Every act becomes a centre of pulsations that widen throughout existence, and re-centre in a thousand crossing waves from every hill, and house, and tree.

Little acts are the elements of true greatness. They raise life's value like the little figures over the larger ones in Arithmetic, to its highest power. They are tests of character and disinterestedness. They are the straws upon life's deceitful current, and show the current's way. The heart comes all out in them. They move on the dial of character and responsibility significantly. They indicate the character and destiny. They help to make the immortal man. It matters not so much where we are as what we are. It is seldom that acts of moral heroism are called for. Rather the real heroism of life is, to do all its little duties promptly and faithfully.

It is the bubbling spring which flows gently, the little rivulet which runs along day and night by the farm-house that is useful, rather than the swollen flood or the warring cataract. Niagara excites our wonder, and we stand amazed at the power and greatness of God there as he "pours it from the hollow of his hand." But one Niagara is enough for the continent or the world, while the same world requires thousands and tens of thousands of silver fountains and gently-flowing rivulets, that water every farm, and meadow, and every garden, and that shall flow on every day and night with their gentle, quiet beauty. So with the acts of our lives. It is not by great deeds, like those of the martyr's, that good is to be done, but by the daily

and quiet virtues of life, the Christian temper, the good qualities of relatives and friends.

The prayer of deeds is oftener answered than the prayer of words. Deeds are fruits, words are but leaves. There is thought to be very little use in a man's meaning well, if he cannot express his meaning by his acts.

Every man is wary and discreet in confession; it were well if they were so much so in action. Boldness in doing ill is in some sort modified and restrained by boldness in confessing it. Actions show the nature of a man, as fruit does that of a tree; while motives, like the sap, are hidden from our view. We may do a very good action and not be a good man, but we cannot do a very ill one and not be an ill man. Just thoughts often fail to produce just deeds, but just deeds never fail to create just thoughts. A man's best monument is his virtuous actions.

Desire not to live long, but to live well :
How long we live, not years but actions tell.

Fear not to have every action of your life open to the inspection of mankind. Remember that a nicer casuist than man sees into your least actions. A man's most glorious action will at last be found to be but glorious sins, if he hath made *himself*, and not the glory of God, the end of those actions.

We are not too closely to scrutinize motives, says Burke, as long as actions are irreproachable.

Even a child is known by its doings, whether his work is pure, and whether it be right.

INDUSTRY.

A very important principle in the business of money-getting, is, Industry—persevering indefatigable attention to business. Persevering diligence is the Philosopher's stone, which turns everything to gold. Constant, regular, habitual, and systematic application to business must, in time, if properly directed, produce great results. It must lead to wealth, with the same certainty that poverty follows in the train of idleness and inattention. It has been truly remarked, that he who follows his amusements instead of his business, will, in a short time, have no business to follow.

It has been said that the best cure for hard times is to cheat the doctor by being temperate; the lawyer, by keeping out of debt; the demagogue, by voting for honest men; and poverty, by being industrious.

To industry, guided by reasonable intelligence and economy, every people can look with certainty as an unfailing source of temporal prosperity. Whatever is useful or beautiful in art, science, or other human attainment, has come from industry. In the humblest pursuits, industry may be accompanied by the noblest intelligence, so that respect, place and power are open to its humblest honest practitioner. Let no man spurn industry as his temporal shield; it is the safest and surest he can buckle to his arm, and with it he may defy the want and poverty which, more than everything else, destroy the independence of man.

In a collection of obituary notices for the year 1799, we find recorded the deaths of two persons, whose circumstances are extraordinary examples of the reverses of fortune, and afford striking proofs of the superiority of honest industry to wild speculation. The first was Mr. James Calvert, who in February died in indigence, having been the sole proprietor of the first ticket that ever drew so high a prize as one hundred thousand dollars in the English lottery; and in a subsequent lottery he gained twenty-five thousand dollars: he was originally a capital vinegar-merchant, at the corner of Old-street, in the City Road. In the following month died Mr. Abraham Newman, who was one of the richest citizens of London, and a happy instance of the powers of accumulation by the steady pursuit of honorable industry. Without speculation or adventure, he acquired three million dollars, as a grocer: he retired from trade about four years before his death, but so forcible was his habit, that he came every day to the shop, and ate his mutton at two o'clock, the good old city hour, with his successors. Verily, it is the hand of the diligent that waxeth rich.

Honorable industry always travels the same road with enjoyment and duty; and progress is altogether impossible without it. The idle pass through life leaving as little trace of their existence as foam upon the water, or smoke upon the air; whereas the industrious stamp their character upon their age, and influence not only their own but all succeeding generations. Labor is the best test of the energies of men, and furnishes an admirable training for practical wisdom. A life of manual toil is not incompatible with even the highest culture. Hugh Miller, than whom none knew better the strength and the weakness belonging to the lot of labor, stated the result of his experience

to be, that work, even the hardest, is full of pleasure and materials for self-improvement. He held honest labor to be the best of teachers, and that the school of toil is the noblest of schools,—save only the Christian one,—that it is a school in which the ability of being useful is imparted, the spirit of independence is learned, and the habit of persevering effort is acquired. He was even of opinion that the training of the mechanic, by the exercise which it gives to his observant faculties, from his daily dealing with things actual and practical, and the close experience of life which he acquires, better fits him for picking his way through the journey of life, and is more favorable to his growth as a Man, emphatically speaking, than the training afforded by any other condition of life.

It is related of James Watt, the inventor of the steam-engine, that he was one of the most industrious of men. Whatever subject came under his notice in the course of his business, immediately became to him an object of study; and the story of his life proves, what all experience confirms, that it is not the man of the greatest natural vigor and capacity who achieves the highest results, but he who employs his powers with the greatest industry and the most carefully disciplined skill,—the skill that comes by labor, application, and experience. Many men in his time knew far more than Watt, but none labored so assiduously as he did to turn all that he did know to useful practical purposes.

Michael Angelo was a great believer in the force of labor; and he held that there was nothing which the imagination conceived, that could not be embodied in marble, if the hand were made vigorously to obey the mind. He was himself one of the most indefatigable of workers; and he attributed his power of studying for a greater number of hours than most of his contemporaries, to his spare habits of living. A little bread and wine was all he required for the chief part of the day when employed at his work; and very frequently he rose in the middle of the night to resume his labors. On these occasions, it was his practice to fix the candle, by the light of which he worked, on the summit of a pasteboard cap which he wore. Sometimes he was too wearied to undress, and he slept in his clothes, ready to spring to his work so soon as refreshed by sleep.

Titian, also, was an indefatigable worker. His celebrated "Pietro Martyre" was eight years in hand, and his "Last Supper" seven. In his letter to Charles V. he said, "I send your majesty the 'Last Supper' after working at it almost daily for seven years." Few think of the patient labor and long training involved in the greatest works

of the artist. They seem easily and quickly accomplished, yet with how great difficulty has this ease been acquired. "You charge me fifty sequins" said the Venetian nobleman to the sculptor, "for a bust that cost you only ten days' labor." "You forget," said the artist, "that I have been thirty years learning to make that bust in ten days."

Thomas Scott was employed upon his Commentary for thirty-three years. The marginal references alone cost him seven years of severe labor. For nearly forty-six years he was employed eight, ten, and sometimes fourteen hours in a day in his study. Of his Commentaries on the Scriptures, not less than thirty-five thousand copies have been sold in the United States alone, at a sum of at least, *seven hundred thousand dollars*.

Practical industry, wisely and vigorously applied, never fails of success. It carries a man onward and upward, brings out his individual character, and powerfully stimulates the action of others. All may not rise equally, yet each, on the whole, very much according to his deserts. "Though all cannot live on the piazza," as the Tuscan proverb has it, "every one may feel the sun."

The history of Disraeli affords a beautiful example of the power of industry and application in working out an eminent public career. His first achievements were in literature; and he reached success only through a succession of failures. As an orator, too, his first appearance was a failure. It was spoken of as "more screaming than an Adelphi farce." Though composed in a grand and ambitious strain, every sentence was hailed with "loud laughter." But he concluded with a sentence which embodied a prophesy. Writhing under the laughter with which his studied eloquence had been received, he exclaimed, "I have begun several times many things, and have succeeded in them at last. I shall sit down now but the time will come when you will hear me." The time did come; and how Disraeli succeeded in at length commanding the attention, the rapt attention of the British House of Commons, affords a striking illustration of what determination and energy will do; for Disraeli earned his position by dint of patient industry. He did not as many young men do, having once failed, retire dejected, to mope and whine in a corner, but pluckily set himself to work. He carefully unlearned his faults, studied the character of his audience, practiced sedulously the art of speech, and industriously filled his mind with the elements of parliamentary knowledge. He worked patiently for success; and it came, but slowly; then the house laughed with him, instead of at him. The recol-

lection of his early failure was effaced, and by general consent he was at length admitted to be one of the most finished and effective of parliamentary speakers.

It ought to be constantly inculcated on the young that industrious habits are essential to success. Industry, honesty, and temperance are essential to health. He who is a stranger to industry may possess, but he cannot enjoy. Peace rears her olive for industrious brows. Industry, and not mean savings, produces wealth. Regular industry is the parent of sobriety. Heat gotten by degrees, with motion and exercise, is more natural, and stays longer by one than what is gotten all at once by coming to the fire—so wealth acquired by industry proves commonly more lasting than that which descends from our ancestors.

Count that day lost whose descending sun
Views from thy hand no worthy action done.

An hour's industry will do more to produce cheerfulness, suppress evil humors and retrieve your affairs than a month's moaning. Redeem misspent time by industry. Few things are impossible to industry, temperance and skill. Whatever other qualities he may have, be sure of this: the most successful man is the most industrious. The sound of your hammer, says Franklin, at five in the morning, or nine at night, heard by a creditor, makes him easy six months longer; but if he sees you at the gaming table, or hears your voice at the tavern when you should be at work, he sends for his money next day.

I have been taught
The world is nothing but a mass of means,—
We have but what we make; that every good
Is locked by nature in a granite hand,
Sheer labor must unclench.

HABIT.

HABIT in a child is at first like a spider's web; if neglected, it becomes a thread of twine; next, a cord of rope; finally, a cable—then who can break it?

O, the tyranny, the despotism of a bad habit! Coleridge, one of the subtlest intellects and finest poets of his time, battled for twenty years before he could emancipate himself from his tyrant, opium. He

went into voluntary imprisonment. He hired a man to watch him day and night, and keep him by force from tasting the pernicious drug. He formed resolution after resolution. Yet, during all the best years of his life, he wasted his substance and his health, neglected his family, and lived degraded and accursed, because he had not resolution to abstain. He would lay plans to cheat the very man whom he paid to keep the drug from him, and bribe the jailor to whom he had voluntarily surrendered himself.

Terrible, *terrible* is the despotism of a bad habit. The case of Coleridge is an extreme one, of course. But there are many, whose eyes these lines will meet, who are as truly the slaves of a perverted appetite as he. Their despot may be opium, tobacco, drink or worse; but they are so completely under the *dominion* of their master, that nothing short of a moral war of independence, which should task all their own strength, and all they could borrow from others, would suffice to deliver them.

Few people form habits of wrong-doing deliberately or wilfully; they glide into them by degrees and almost unconsciously, and before they are aware of danger, the habits are confirmed and require resolute and persistent effort to effect a change. "Resist beginning," was a maxim of the ancients, and should be preserved as a landmark in our day.

It was only the other day that a man fell asleep in his boat on the Niagara River. During his slumber the boat broke loose from her moorings, and he woke to find himself shooting down the rapids directly toward the cataract. In vain he shrieked for help, in vain he tried to row against the current; he drifted on, till his light craft upset, when he was borne rapidly to the brink of the abyss, and leaping up with a wild cry, went over and disappeared forever.

In the great battle of Gibraltar, when the united fleets of France and Spain attacked the impregnable fortress, one of the gigantic floating batteries broke from her anchorage and began to drift directly into the hottest of the British fire. The thousand men who formed the crew of the unwieldy mass, vainly strove to arrest its progress or divert it from its path. Every minute it drifted nearer to the English guns, every minute some new part took fire from the red-hot shot, every minute another score of its hapless defenders were swept like chaff from its decks. The most superhuman efforts failed to prevent its drifting with its human freight to inevitable death.

A ship was wrecked at sea. The passengers and crew took refuge on a raft, the boats having been stove in the attempt to launch them.

For days and weeks these unfortunates drifted about without oar or sail on the hot, broken tropical ocean. At last their provisions failed, and then their water. Still they drifted about, vainly looking for a sail, or hoping for a sight of land. The time had now come when that fearful alternative became inevitable—death from starvation or feeding on human flesh—and they were just beginning to cast lots for a victim when a vessel was seen on the distant horizon. They abandoned their terrible design; the stranger would approach. The ship came toward them. She drew nearer and nearer. They strove to attract her attention by shouts and by raising their clothing; but the indolent look-out saw them not. They shouted louder and louder, still they were not seen. At last the vessel tacked. With frantic terror they rise in one body, shouting and waving their garments. It was in vain. The unconscious ship stood steadily away. Night drew on, and as the darkness fell the raft drifted and drifted in the other direction till the last trace of the vessel was lost forever.

So it is in life. The intemperate man who thinks he at least will never die a drunkard, whatever his neighbor may do, only wakes to find himself drifting down the cataract and all hope gone. The sensualist, who lives merely for his own gratification, drifts into an emasculated old age to be tortured with passions he can not gratify, and perish by merciless, agonizing diseases. The undisciplined, who never learned to control themselves, who are spendthrifts, or passionate, or indolent, or visionary, soon make shipwreck of themselves, and drift about the sea of life, the prey of every wind and current, vainly shrieking for help, till at last they drift away into darkness and death.

Take care that you are not drifting. See that you have fast hold of the helm. The breakers of life forever roar under the lee, and adverse gales continually blow on the shore. Are you watching how she heads? Do you keep a firm gripe of the wheel? If you give way but for one moment you may drift hopelessly into the boiling vortex. Young men, take care! It rests with yourselves alone under God, whether you reach port triumphantly or drift to ruin.

Be not slow in the breaking of a sinful custom; a quick, courageous resolution is better than a gradual deliberation; in such a combat, he is the bravest soldier who lays about him without fear or wit. Wit pleads, fear disheartens; he that would kill hydra, had better strike off one neck than five heads; fell the tree, and the branches are soon cut off.

Evil habits must be conquered, or they will conquer us and destroy our peace and happiness.

Vicious habits are so great a stain upon human nature, said Cicero, and so odious in themselves, that every person actuated by right reason would avoid them, though he was sure they would always be concealed both from God and man, and had no future punishment entailed upon them.

Vicious habits, when opposed, offer the most vigorous resistance on the first attack. At each successive encounter this resistance grows fainter and fainter, until finally it ceases altogether and the victory is achieved.

Habit is man's best friend or worst enemy; it can exalt him to the highest pinnacle of virtue, honor and happiness, or sink him to the lowest depths of vice, shame and misery.

We may form habits of honesty, or knavery; truth or falsehood; of industry, or idleness; frugality, or extravagance; of patience, or impatience; self-denial, or self-indulgence; of kindness, cruelty, politeness, rudeness, prudence, perseverance, circumspection. In short there is not a virtue, nor a vice; not an act of body, nor of mind, to which we may not be chained down by this despotic power.

It is a great point for young men to begin well; for it is in the beginning of life that that system of conduct is adopted, which soon assumes the force of habit. Begin well, and the habit of doing well will become quite as easy as the habit of doing badly. Pitch upon that course of life which is the most excellent, and habit will render it the most delightful. Well begun is half ended, says the proverb; and a good beginning is half the battle. Many promising young men have irretrievably injured themselves by a first false step at the commencement of life; while others, of much less promising talents, have succeeded simply by beginning well, and going onward. The good practical beginning is, to a certain extent, a pledge, a promise, and an assurance, of the ultimate prosperous issue. There is many a poor creature, now crawling through life, miserable himself and the cause of sorrow to others, who might have lifted up his head and prospered, if, instead of merely satisfying himself with resolutions of well-doing, he had actually gone to work and made a good practical beginning.

Man, it has been said, is a bundle of habits; and habit is second nature. Metastasio entertained so strong an opinion as to the power of repetition in act and thought, that he said, "All is habit in mankind, even virtue itself." Butler, in his "Analogy," impresses the

importance of careful self-discipline, and firm resistance to temptation, as tending to make virtue habitual, so that at length it may become more easy to be good than to give way to sin. "As habits belonging to the body," he says, "are produced by external acts, so habits of the mind are produced by the execution of inward practical purposes, *i. e.*, carrying them into act, or acting upon them,—the principles of obedience, veracity, justice, and charity." Make sobriety a habit. and intemperance will be hateful; make prudence a habit, and reckless profligacy will become revolting to every principle of conduct which regulates the life of the individual. Hence the necessity for the greatest care and watchfulness against the inroad of any evil habit; for the character is always weakest at that point at which it has once given way; and it is long before a principle restored can become so firm as one that has never been moved. It is a fine remark of a Russian writer that "Habits are a necklace of pearls: untie the knot, and the whole unthreads."

Wherever formed, habit acts involuntarily, and without effort; and it is only when you oppose it, that you find how powerful it has become. What is done once and again, soon gives facility and proneness. The habit at first may seem to have no more strength than a spider's web; but once formed, it binds us as with a chain of iron. The small events of life, taken singly, may seem exceedingly unimportant, like snow that falls silently, flake by flake; yet accumulated, these snow-flakes form the avalanche.

Self-respect, self-help, application, industry, integrity,—all are of the nature of habits, not beliefs. Principles, in fact, are but the names which we assign to habits; for the principles are words, but the habits are the things themselves: benefactors, or tyrants, according as they are good or evil. It thus happens that as we grow older, a portion of our free activity and individuality becomes suspended in habit; our actions become of the nature of fate; and we are bound by the chains which we have woven around ourselves.

It is indeed scarcely possible to over-estimate the importance of training the young to virtuous habits. In them they are the easiest formed, and when formed they last for life; like letters cut on the bark of a tree, they grow and widen with age. "Train up a child in the way he should go, and when he is old he will not depart from it." The beginning holds within it the end; the first start on the road of life determines the direction and the destination of the journey. As habit strengthens with age, and character becomes formed, any turning into a new path becomes more and more difficult. Hence, it is

often harder to unlearn than to learn; and for this reason the Grecian flute-player was justified who charged double fees to those pupils who had been taught by an inferior master. To uproot an old habit is sometimes a more painful thing, and vastly more difficult, than to wrench out a tooth. Try and reform a habitually indolent, or improvident, or drunken person, and in a large majority of cases you will fail. For the habit in each case has wound itself in and through the life until it has become an integral part of it, and can not be uprooted. Hence the wisest habit of all is the habit of care in the formation of good habits.

Even happiness itself may become habitual. There is a habit of looking on the bright side of things, and also of looking on the dark side. Dr. Johnson has said that the habit of looking at the best side of a thing is worth more to a man than a thousand pounds a year. And we possess the power, to a great extent, of so exercising the will as to direct the thoughts upon objects calculated to yield happiness and improvement rather than their opposites. In this way the habit of happy thought may be made to spring up like any other habit. And to bring up men or women with a genial nature of this sort, a good temper, and a happy frame of mind, is perhaps of even more importance, in many cases, than to perfect them in much knowledge and many accomplishments.

An instance exhibiting the force of habit is related of a counselor, renowned for the art of pleading, who had a trick of rubbing his spectacle case while addressing a jury. A foolish attorney who had confided a brief to him, thought this action indecorous, and likely to impair the effect of the pathetic appeals which the nature of the suit admitted. Accordingly, he watched for an opportunity, and stole away the spectacle case. For the first time in his life the counselor's tongue faltered—his mind missed the bodily track with which it had long associated its operations; he became confused, embarrassed—he stammered, blundered and boggled—lost all the threads of his brief, and was about to sit down, self-defeated, when the conscience-stricken attorney restored the spectacle case. Straightway, with the first touch of the familiar talisman, the mind recovered its self-possession, the memory its clearness, the tongue its fluency; and as, again and again the lawyer fondly rubbed the spectacle case, argument after argument flew forth like the birds from a conjurer's box. And the jury, to whom a few moments before, the case seemed hopeless, were stormed into unanimous conviction of its justice.

Such is the force of habit. Such the sympathy between mental

and bodily associations. Every magician needs his wand; and perhaps every man of genius has—his spectacle case.

Every one knows the story of the tallow chandler, who, having amassed a fortune, disposed of his business and taken a house in the country, not far from the city, that he might enjoy himself, after a few months trial of the holiday life, requested permission of his successor to come into town, and assist him on melting days. We have heard of one who kept a retail spirit shop, and having, in like manner, retired from trade, used to enjoy himself by having one puncheon filled with water, and measuring it off by pints into another. We have heard, also, of a butcher in a small country town, who, some little time after he had left off business, informed his old customers that he meant to kill a lamb once a week, just for his amusement.

OBSERVATION.

To be always attentively observing what is passing around them, is one of the means by which men improve their circumstances. The difference between men consists in a great measure, in the intelligence of their observation. The Russian proverb says of the non-observant man, "He goes through the forest and sees no firewood." "The wise man's eyes are in his head," says Solomon, "but the fool walketh in darkness." "Sir," said Johnson, on one occasion, to a fine gentleman just returned from Italy, "Some men will learn more in the Hampstead stage than others in the tour of Europe." It is the mind that sees as well as the eye. Where unthinking gazers observe nothing, men of intelligent vision penetrate into the very fibre of the phenomena presented to them, attentively noting differences, making comparisons and detecting their underlying idea. Many before Galileo, had seen a suspended weight swing before their eyes with a measured beat; but he was the first to detect the value of the fact. One of the vergers in the Cathedral at Pisa, after replenishing with oil a lamp which hung from the roof, left it swinging to and fro; and Galileo, then a youth of only eighteen, noting it attentively, conceived the idea of applying it to the measurement of time. Fifty years of study and labor, however, elapsed before he completed the invention of his pendulum,—an invention, the importance of which, in the measurement of time and in astronomical calculations, can scarcely be overvalued. In like manner, Galileo, observing the magnifying effect pro-

duced by two of a spectacle-maker's glasses accidentally placed together, was led to the invention of the telescope, which was the beginning of astronomical discovery. Discoveries such as these could never have been made by a negligent observer, or by a mere idle gazer.

While captain (afterwards Sir Samuel) Brown was occupied in studying the construction of bridges, with the view of contriving one of a cheap description to be thrown across the Tweed, near which he lived, he was walking in his garden one dewy autumn morning when he saw a tiny spider's net suspended across his path. The idea immediately occurred to him that a bridge of iron ropes or chains might be constructed in like manner, and the result was the invention of his Suspension Bridge. So James Watt, when consulted about the mode of carrying water by pipes under the Clyde along the unequal bed of the river, turned his attention one day to the shell of a lobster presented at table; and from that model he invented an iron tube, which, when laid down, was found effectually to answer the purpose. Sir Isambert Brunel took his first lessons in forming the Thames Tunnel from the tiny shipworm: he saw how the little creature perforated the wood with its well-armed head, first in one direction and then in another, till the archway was complete, and then daubing over the roof and sides with a kind of varnish; and by copying this work exactly on a large scale, Brunel was at length enabled to accomplish his great engineering work.

It is the intelligent eye of the careful observer which gives these apparently trivial phenomena their value. So trifling a matter as the sight of sea-weed floating past his ship, enabled Columbus to quell the mutiny which arose amongst his sailors at not discovering land, and to assure them that the eagerly sought New World was not far off.

The following familiar anecdote illustrates the action of both the perceptive and reflective faculties in a happy manner. It is a dialogue between an Indian and a white man, relating to a deer which had been killed by the Indian, and hung upon the limbs of a tree:

Indian to White Man—Have you seen a little old white man with a deer on his back, a long gun, and a little short-tailed dog pass by of late?

White Man—No. Why do you ask? And how do you know it was a little old white man with a long gun, and a little short-tailed dog?

Indian—The deer had been hung up so high that the thief could not reach it till he had first placed logs and blocks by the side of the

tree on which to stand when he managed to get the "game." He—the Indian—therefore inferred it was a small man who stole it.

White Man—But how do you know he had a long gun?

Indian—Because, seeing where it had been set on the ground, and, observing the mark where it touched the side of the tree higher up, showing it must have been a *long* gun.

White Man—How do you know he was an old white man?

Indian—I know he was a white man, for he turned his toes out in walking, which an Indian does not do, and I know he was old, because he took short steps.

White Man—How do you know he had a small dog with a short tail?

Indian—By his tracks, and seeing where he sat on the snow while his master was taking down the deer; his short tail left its impression in the snow.

Thus, by the powers of "observation" which are great in the tutored Indian, he was enabled to describe a person he had not seen, to detect the thief, and fix the crime on him by strong circumstantial evidence.

Teach your children to observe closely, reflect carefully, and describe exactly what they see. By this, that habit of reckless exaggeration and loose description, now so common, would in a great measure be avoided. Indeed, this is one way, *the* way to educate children.

OPPORTUNITY.

FOUR things come not back: the spoken word; the sped arrow; the past life; and the neglected opportunity. Opportunity has hair in front, behind she is bald; if you seize her by the forelock you may hold her, but if suffered to escape, not Jupiter himself can catch her again. Opportunities are the offers of God. Heaven gives us enough when it gives us opportunity. Great opportunities are generally the result of the wise improvement of small ones. Wise men make more opportunities than they find. If you think your opportunities are not good enough you had better improve them. Remember you are responsible for talents, for time, and for opportunities; improve them as one that must give an account. Make hay while the sun shines. Gather roses while they bloom. While you are deliberating, the sea

son now so favorable may pass away never to return. No one should undervalue the advantage he enjoys.

There is an eastern story, which has its version in many languages, of a beautiful damsel, to whom a genius of surpassing power desired to give a talisman. He enjoined her to take herself across a field of standing corn; she was to pluck the tallest and largest ear she could find, but she was to gather it as she went forward, and never pause in her path, or step backward in quest of her object. In proportion to the size and ripeness of the ear she gathered so would be its power as a talisman. She went out upon her quest, says the legend, and entered upon the field. Many a stalk of surpassing excellence met her glance, but she still walked onward, expecting to find some one more excellent still. At last she reached a portion of the field where the crops were thinner and the ears more stunted. She regretted the tall and graceful stalks she had left behind, but disdained to pick those which fell so far below what her ideas were of a perfect ear. But alas! the stems grew more ragged and more scanty as she trod onward; on the margin of the field they were mildewed, and when she had accomplished her walk through the waving grain she emerged on the other side without having gathered any ear whatever. The genius rebuked her for her folly, but we are not told that he gave an opportunity of retrieving her error.

We may apply this mystic little Indian fable to the realities of daily life.

Never whine over what you suppose to be loss of opportunities. A great many men have good early opportunities who never improve them, and many have lost their early opportunities without losing much. Every one may educate himself that wishes it. It is the will that makes the way. Many a servant that wanted knowledge has listened, while his master's children were saying their letters and putting them together to form easy words, and has thus caught the first elements of spelling. If a man has a strong thirst for knowledge, we do not care where he is put, he will become an educated man. The first step toward self-improvement is, *to leave off whining over the past*. Let the past go, and bend every energy to the improvement of the present. This is the only way.

Accident does very little towards the production of any great result in life. Though sometimes what is called a "happy hit" may be made by a bold venture, the old and common highway of steady industry and application is the only safe road to travel.

Although there are discoveries which are said to have been made

by accident, if carefully inquired into, it will be found that there has really been very little that was accident about them. For the most part, these so called accidents have only been opportunities, carefully improved by genius. The fall of the apple at Newton's feet has often been quoted in proof of the accidental character of some discoveries. But Newton's whole mind had already been devoted for years to the laborious and patient investigation of the subject of gravitation; and the circumstance of the apple falling before his eyes was suddenly apprehended only as a genius could apprehend it, and served to flash upon him the brilliant discovery then bursting on his sight. In like manner; the brilliantly colored soap bubbles blown from a common tobacco pipe,—though "trifles light as air," in most eyes,—suggested to Dr. Young his beautiful theory of "interferences," and led to his discovery relating to the diffraction of light. Although great men are popularly supposed only to deal with great things, men such as Newton and Young were ready to detect the significance of the most familiar and simple facts; their greatness consisting mainly in their wise interpretation of them.

It is said that the Marquis of Worcester's attention was first accidentally directed to the subject of steam power, by the tight cover of a vessel containing hot water having been blown off before his eyes, when confined a prisoner in the Tower. He published the result of his observations in his "Century of Inventions," which formed a sort of text book for inquirers into the power of steam for several generations, until Savary, Newcomer, and others, applying it to practical purposes, brought it to the state in which Watt found it when called upon to repair a model of Newcomer's engine. This accidental circumstance was an opportunity for Watt, which he was not slow to improve; and it was the labor of his life to bring the steam-engine to perfection.

This art of seizing opportunities and turning even accidents to account, bending them to some purpose, is a great secret of success. Dr. Johnson has defined genius to be "a mind of large general powers accidentally determined in some particular direction." Men who are resolved to find a way for themselves, will always find opportunities enough; and if they do not lie ready to their hand, they will make them. It is not those who have enjoyed the advantages of colleges, museums, and public galleries, that have accomplished the most for science and art; nor have the greatest mechanics and inventors been trained in mechanics' institutes. Necessity, oftener than facility, has been the mother of invention; and the most prolific school of all has

been the school of difficulty. Some of the very best workmen have had the most indifferent tools to work with. But it is not tools that make the workman, but the trained skill and perseverance of the man himself. Indeed, it is proverbial that the bad workman never yet had a good tool. Some one asked Opie by what wonderful process he mixed his colors. "I mix them with my brains, sir," was his reply. It is the same with every workman who would excel. Ferguson made marvelous things,—such as his wooden clock, that accurately measured the hours,—by means of a common penknife, a tool in everybody's hand. An eminent *savant* once called upon Dr. Wallaston, and requested to be shown over his laboratories, in which science had been enriched by so many important discoveries, when the doctor took him into a little study, and pointing to an old tea-tray on the table, containing a few watch-glasses, test-papers, a small balance, and a blow-pipe, said, "There is all the laboratory that I have!"

Strothard learned the art of combining colors by closely studying butterflies' wings; he would often say that no one knew what he owed to these tiny insects. A burnt stick and a barn-door served Wilkie in lieu of pencil and canvass. Bewick first practiced drawing on the cottage walls of his native village, which he covered with his sketches in chalk; and Benjamin West made his first brushes out of the cat's tail. Ferguson laid himself down in the fields at night in a blanket, and made a map of the heavenly bodies, by means of a thread with small beads on it stretched between his eye and the stars. Franklin first robbed the thunder cloud of its lightning by means of a kite made of two cross-sticks and a silk handkerchief. Watt made the first model of his condensing steam-engine out of an old anatomist's syringe, used to inject the arteries previous to dissection. Gifford worked his first problem in mathematics when a cobbler's apprentice, upon small scraps of leather, which he beat smooth for the purpose; whilst Rittenhouse, the astronomer first calculated eclipses on his plough handle.

The most ordinary occasions will furnish a man with opportunities or suggestions for improvement, if he be but prompt to take advantage of them.

Sir Humphrey Davy, when an apothecary's apprentice, performed his first experiments with instruments of the rudest descriptions. He extemporized the greater part of them himself, out of the motley materials which chance threw in his way. The pots and cans of the kitchen, and the phials and vessels of his master's surgery, were re-

morselessly put in requisition. The words entered in his note-book, when about twenty years of age, were eminently characteristic: "I have neither riches, nor power, nor birth, to recommend me; yet, if I live, I trust I shall not be of the less service to mankind and my friends, than if I had been born with all these advantages."

Cuvier, when a youth, was one day strolling along the sands, when he observed a cuttle-fish lying stranded on the beach. He was attracted by the curious object, took it home to dissect it, and began the study of the mollusca, which ended in his becoming one of the greatest among natural historians. In like manner, Hugh Miller's curiosity was excited by the remarkable traces of extinct sea animals in the Old Red Sandstone, on which he worked as a quarryman. He inquired, observed, studied, and became a geologist. "It was the necessity," said he, "which made me a quarrier, that taught me to be a geologist."

It is not accident, then, that helps a man in the world, but purpose and persistent industry. These make a man sharp to discern opportunities, and turn them to account. To the feeble, the sluggish, and purposeless, the happiest opportunities avail nothing,—they pass them by, seeing no meaning in them. But if we are prompt to seize and improve even the shortest intervals of possible action and effort, it is astonishing how much can be accomplished. Watt taught himself chemistry and mechanics while working at his trade of a mathematical instrument maker; and he availed himself of every opportunity to extend his knowledge of language, literature, and the principles of science. Stephenson taught himself arithmetic and mensuration while working as an engineman during the night shifts, and he studied mechanics during his spare hours at home, thus preparing himself for the great work of his life,—the invention of the passenger locomotive.

With perseverance, the very odds and ends of time may be worked up into results of the greatest value. An hour in every day withdrawn from frivolous pursuits, would, if profitably employed, enable any man of ordinary capacity, very shortly to master a complete science. It would make an ignorant man a well-informed man in ten years. We must not allow the time to pass without yielding fruits, in the form of something learned worthy of being known, some good principle cultivated, or some good habit strengthened. Dr. Mason Good translated Lucretius while riding in his carriage in the streets of London, going his rounds among his patients. Dr. Darwin composed nearly all his works in the same way, while riding about in his

"sulky," from house to house in the country,—writing down his thoughts on little scraps of paper, which he carried about with him for the purpose. Hale wrote his "contemplations" while traveling on a circuit. Dr. Burney learned French and Italian while traveling on horseback from one musical pupil to another in the course of his profession. Kirk White learned Greek while walking to and from a lawyer's office; and we personally know a man of eminent position in a northern manufacturing town, who learned Latin and French while going messages as an errand-boy in the streets of Manchester.

Elihu Burritt attributed his first success in self-improvement, not to genius, which he disclaimed, but simply to the careful employment of those invaluable fragments of time, called "odd moments." While working and earning his living as a blacksmith, he mastered some eighteen ancient and modern languages, and twenty-two European dialects. Withal, he was exceedingly modest, and thought his achievements nothing extraordinary. Like another learned and wise man, of whom it was said that he could be silent in ten languages, Elihu Burritt could do the same in forty. "Those who have been acquainted with my character from my youth up," said he, writing to a friend, "will give me credit for sincerity when I say, that it never entered into my head to blazon forth any acquisition of my own.

* * * All that I have accomplished, or expect, or hope to accomplish, has been and will be by that plodding, patient, persevering process of accretion which builds the ant-heap,—particle by particle, thought by thought, fact by fact. And if ever I was actuated by ambition, its highest and warmest aspiration reached no further than the hope to set before the young men of my country an example in employing those invaluable fragments of time called 'odd moments.'"

Daguesseau, one of the great chancellors of France, by carefully working up his odd bits of time, wrote a bulky and able volume in the successive intervals of waiting for dinner; and Madame de Gentis composed several of her charming volumes while waiting for the princess to whom she gave her daily lessons. Jeremy Bentham in like manner disposed of his hours of labor and repose, so that not a moment should be lost, the arrangement being determined on the principle that it is a calamity to lose the smallest portion of time. He lived and worked habitually under the practical consciousness that man's days are numbered, and that the night cometh when no man can work.

What a solemn and striking admonition to youth is that inscribed on the dial at All Souls, Oxford, England,—"*Periunt et imputantur,*"

—the hours perish and are laid to our charge. For time, like lie, can never be recalled. Melancton noted down the time lost by him, that he might thereby reanimate his industry, and not lose an hour. An Italian scholar put over his door an inscription intimating that whosoever remained there should join in his labors. "We are afraid," said some visitors to Baxter, "that we break in upon your time." "To be sure you do," replied the disturbed and blunt divine. Time was the estate out of which these great workers, and all other workers, carved a rich inheritance of thoughts and deeds for their successors.

Sir Walter Scott found opportunities for self-improvement in every pursuit, and turned even accidents to account. Thus *it* was in the discharge of his functions as a writer's apprentice that he first penetrated into the Highlands, and formed those friendships among the surviving heroes of 1745 which served to lay the foundation for a large class of his works. Later in life, when employed as quartermaster of the Edinburgh Light Cavalry, he was accidentally disabled by the kick of a horse, and confined for some time to his house; but Scott was a sworn enemy to idleness, and he forthwith set his mind to work, and in three days composed the first canto of "The Lay of the Last Minstrel,"—his first great original work.

PURPOSE.

It is not eminent talent that is required to insure success in any pursuit, so much as purpose. There is nothing like a fixed, steady aim, with an honorable purpose. It dignifies your nature, and insures your success. The young man without a mark is like a ship at sea without a compass or other means of knowing his destination and speed. A man who has a fixed purpose to which he devotes his powers, is invulnerable. Like the rock in the sea, it splits the troubles of life, and they eddy round him in idle foam. Some people are busy, and yet do nothing; they fatigue and wear themselves out, and yet arrive at no point, nor propose any general end of action or design.

Always have an object in view; and let your aim in life be elevated. This is the safeguard of character, and the mainspring of excellence. Aim at virtue and moral excellence. This is the first, the indispensable qualification of a good citizen. It imparts life and

strength and beauty, not only to individual character, but to all the institutions and interests of society.

When a child is learning to walk, if you can induce the little creature to keep its eyes fixed on any point in advance, it will generally "navigate" to that point without capsizing; but distract its attention by word or act from the object before it, and down goes the baby. The rule applies to children of a larger growth. The man who starts in life with a determination to reach a certain position, and adheres unwaveringly to his purpose, rejecting the advice of the over-cautious, and defying the auguries of the timid, rarely fails if he live long enough to reach the goal for which he set out. If circumstances oppose him, he bends them to his exigencies by the force of energetic, indomitable will. On the other hand, he who vacillates in his course, "yawning," as the sailors say, toward all points of the compass, is pretty sure to become a helpless castaway, before his voyage of life is half completed.

There can be no question among philosophic observers of men and events, that fixedness of purpose is a grand element of human success. Weathercock men are Nature's failures. They are good for nothing.

The men of action, whose names are written imperishably on the page of history, were men of iron. Silky fellows may do for intrigue, but the founders, and conquerors, and liberators, and saviors of empires have all been of the warrior metal. No human being who habitually halts between two opinions, who can not decide promptly, and, having decided, act as if there were no such word as fail, can ever be great. Cæsar would never have crossed the Rubicon, nor Washington the Delaware, had they not fixed their stern gaze on objects far beyond the perils at their feet.

Henry Ward Beecher, in a recent sermon, remarked:

We see supreme purposes which men have formed running through their whole career in this world. A young man means to be a civil engineer. That is the thing to which his mind is made up; not his father's mind, perhaps, but his. He feels his adaptation to that calling, and his drawing toward it. He is young, inexperienced, forgetful, accessible to youthful sympathies, and is frequently drawn aside from his life purpose. To-day he attends a picnic. Next week he devotes a day to some other excursion. Occasionally he loses a day in consequence of fatigue caused by over action. Thus there is a link knocked out of the chain of this week, and a link out of the chain of

that week. And in the course of the summer he takes a whole week, or a fortnight out of that purpose.

Yet there is the thing in his mind, whether he sleeps or wakes. If you had asked him a month ago what he meant to be in life, he would have replied, "I mean to be a civil engineer." And if you ask him to-day what has been the tendency of his life, he will say, "I have been preparing myself to be a civil engineer." If he waits and does nothing, the reason is that he wants an opportunity to carry out his purpose. That purpose governs his course, and he will not engage in anything that would conflict with it.

These generic principles in the soul are like those great invisible laws of nature, whose effects are seen in the falling of the pebble-stone, in all the various changes which natural objects undergo. When a man has formed in his mind a great sovereign purpose, it governs his conduct, as the law of nature governs the operation of physical things.

Every man should have a *mark* in view, and pursue it steadily. He should not be turned from his course by other objects ever so attractive. Life is not long enough for any one man to accomplish everything. Indeed but few can at best accomplish more than one thing well. Many, alas, very many! accomplish nothing worthy. Yet there is not a man endowed with fair or ordinary intellect or capacity but can accomplish at least one useful, important, worthy purpose.

But few men could ever succeed in more than one of the learned professions. Perhaps the man never lived who could master and become eminent in the practice of all of them. Certainly not in them, and also in agriculture and the mechanic arts. Not because one man was never endowed with capacity for any of those pursuits or callings as he might choose. Our country, every country abounds with men possessing sufficient natural capacity for almost or quite any pursuit they might select and pursue exclusively. But the reason is simply because no one man has the time even if he have the capacity to master and pursue with eminent success, so many and such widely different avocations. Indeed, man's days, at most, are so few, and his capacity, at the highest, so small, that never yet has he even by confining the united efforts and energies of his lifetime at the most trivial pursuit, much less in the deep and intricate learned professions, attained to perfection; and he never will. How much less then are the probabilities of him exhausting several, and those perhaps the most complicated spheres of man's activity.

Let man have *one* mark in view, and let him not under any consideration lose sight of that. Neither let him loiter by the way, nor wander from the direct path. What would you think of the man who should start on a journey, and, becoming weary on the way, should lie down in some tempting shade and abandon his project; or should be lured from his course by some enticing company or some idle tale; or should he turn back when nearly, or even not more than half way there, and seek another object in an opposite direction? Suppose I have several places to visit, and after having proceeded some distance on my way towards one, conclude to turn about and seek another first, and before reaching that turn for still another, and so continue to vacillate between the different points, so constantly changing my mind and accordingly my direction as to never arrive at any of the places. Would you not all set me down as crazy at once?

Do we not see men whom we have never suspected of unsoundness all around us, even in our own town, and among our own acquaintances, ever shifting their purpose, first pursuing this, then that, afterward something else, and thus, though reckoned smart, able men, yet never perfecting or succeeding in anything. On the other hand, do we not see hundreds of others, of far less natural endowments, men of small calibre, selecting, adopting, pursuing and adhering to one business, perhaps what we are pleased to denominate a small business at that, but by persistence in a straight-forward course toward his mark, he has acquired proficiency in that business and succeeds. He is "making money;" he is making himself useful in the world while our friend of natural talent, too bright for any one pursuit alone, but who must try to follow half a dozen, fails in all, accomplishes nothing praiseworthy, but spends his time in telling what his uncle or grandfather has done, what he might have done, or intends to do, with a slight change by way of diversity, in fruitless because not thorough experiments in this that and the other—'twould take a phonographic reporter to make a note of them all.

Perhaps some may here interrupt me by saying that the latter is the better man of the two, that he is generous, noble-hearted, clever, a friend to everybody, and therefore everybody his friend. So it may be. I will not impeach his character, nor question his motives. They may be, nay, I trust they are, good. I hope he is in principles, in morals, in religion a good man. And if so, how much more important that he should be a practical, a systematic, a successful business man. His goodness now amounts to but little more than words,

looks, wishes—if these are right, they are much, aye, very much. A kind word, a look of love, even a benevolent wish are much to be prized. But how much more value might be attached to them, how much more serviceable could they be made, were they accompanied by the means, were the words, looks, wishes, aided by acts of charity that would relieve poverty, comfort the widow, and care for the orphan.

It is the living, acting, moving man who has it in his power to do good. It is very easy to feel sorry, but let us ask with the intelligent old Quaker, "Friend, how much does thee feel sorry? I feel sorry half a dollar; does thee feel sorry half a dollar?" And the man who not merely talks, looks and wishes, but actually lives, acts, moves, must, in order to gain the power to do good, have a mark in view, and direct all his efforts, or his principal efforts to secure that point. Whatever he reads should be in view of that object, and whatever he does should be regulated by that aim in view. He may sometimes be compelled to step aside from the straight path, he may have outside duties to perform, but let them be subservient to that fixed purpose, let his purpose still be onward, let that onward course be prosecuted as soon as circumstances will admit. If forced to make a pause, let it not be a period.

WILL.

THE indomitable will, the inflexible purpose, looking for future good through present evil, have always begot confidence and commanded success, while the opposite qualities have as truly led to timid resolves, uncertain councils, alternate exaltation and depression, and final disappointment and disaster. A vacillating policy, irresolute councils, unstable will, subordination of the future to the present, efforts to relieve ourselves from existing trouble without providing against its recurrence, may bring momentary quiet, but expose us to greater disquiet than ever hereafter. A double-minded man is unstable in all his ways. Unstable as water, thou shalt not excel.

Will is the monarch of the mind, ruling with despotic, and at times with tyrannical powers. It is the rudder of the mind, giving directions to its movements. It is the engineer giving course and point, speed and force to the mental machinery. It acts like a tonic among the soul's languid powers. It is the band that ties into a strong bundle

the separate faculties of the soul. It is the man's momentum; in a word, it is that power by which the energy or energies of the soul are concentrated on a given point, or in a particular direction: it fuses the faculties into one mass, so that instead of scattering all over like grape and canister, they spend their united force on one point. The intellect is the legislative department, the sensibilities are the judicial, and the will the executive.

Says Shakespeare, Our bodies are our gardens; to the which, our wills are gardeners: so that if we will plant nettles, or sow lettuce; set hyssop, and weed up thyme; supply it with one gender of herbs, or distract it with many; either to have it sterile with idleness, or manured with industry; why, the power and corrigible authority of this lies in our wills.

Where there is a will there is a way. Nothing is impossible to him who wills. Will is the root; knowledge the stem and leaves; feeling the flower.

Mr. Walker, author of the "Original," had so great a faith in the power of the will, that he says on one occasion he determined to be well, and he was so. This may answer once; but, though safer to follow than prescriptions, it will not always succeed. The power of mind over body is no doubt great, but it may be strained until the physical power breaks down altogether. It is related of Muley Moloc, the Moorish leader, that when lying ill, almost worn out by an incurable disease, a battle took place between his troops and the Portuguese; when, starting from his litter at the great crisis of the fight, he rallied his army, led them to victory, and instantly afterwards sank exhausted and expired.

It is *will*,—force of purpose,—that enables a man to do or be whatever he sets his mind on being or doing. A holy man was accustomed to say, "Whatever you wish, that you are; for such is the force of our will, joined to the Divine, that whatever we wish to be, seriously, and with a true intention, that we become. No one ardently wishes to be submissive, patient, modest, or liberal, who does not become what he wishes."

Each individual feels and knows that practically he is free to choose between good and evil. It would paralyze all desire of excellence were it otherwise. The entire business and conduct of life, with its domestic rules, its social arrangements, and its public institutions, proceed upon the practical conviction that the will is free. In every movement of our lives, conscience is proclaiming that the will is free. It is the only thing that is wholly ours, and it rests solely with our-

selves individually, whether we give it the right or wrong direction. Our habits or our temptations are not our masters, be we of them.

Said Lammenais once, "That which the easiest becomes a habit in us is the will. Learn then to will strongly and decisively." Buxton held the conviction that a young man might be very much what he pleased, provided he formed a strong resolution and held to it. He said, "I am sure he may. In my own case it was so. Much of the happiness and all of my prosperity in life have resulted from the change that I made at an early age." He adds, "If you seriously resolve to be energetic and industrious, depend upon it that you will for your whole life have reason to rejoice that you were wise enough to form and act upon that determination." As will, considered without regard to direction, is simply constancy, firmness, perseverance, it will be obvious that everything depends upon right direction and motives. Directed towards the enjoyment of the senses, the strong will may be a demon, and the intellect merely its debased slave; but directed towards good, the strong will is a king, and the intellect is then the minister of man's highest well-being.

"Where there is a will there is a way," is an old and true saying. He who resolves upon doing a thing, by that very resolution often scales the barriers to it, and secures its achievement. To think we are able is almost to be so,—to determine upon attainment, is frequently attainment itself. Thus, earnest resolution has often seemed to have about it almost a savor of Omnipotence. "You can only half will," Suwarrow would say to people who had failed. "I don't know," "I can't," and "impossible," were words which he detested above all others. "Learn! do! try!" he would exclaim.

One of Napoleon's favorite maxims was, "The truest wisdom is a resolute determination." His life, beyond most others, vividly showed what a powerful and unscrupulous will could accomplish. He threw his whole force of body and mind direct upon his work. Imbecile rulers and the nations they governed went down before him in succession. He was told that the Alps stood in the way of his armies. "There shall be no Alps," he said, and the road across the Simplon was constructed, through a district formerly almost inaccessible. "Impossible," said he, "is a word only to be found in the dictionary of fools." He was a man who toiled terribly; sometimes employing and exhausting four secretaries at a time. He spared no one, not even himself. His influence inspired other men and put a new life into them. "I made my generals out of mud," he said. But all was of no avail: for Napoleon's intense selfishness was his

ruin, and the ruin of France, which he left a prey to anarchy. His life taught the lesson that power, however energetically wielded, without beneficence, is fatal to its possessor and its subjects; and that knowledge, or knowingness, without goodness, is but the incarnate principle of evil.

PATIENCE.

I SAW the proprietor of a large garden stand at his fence, and call over to a poor neighbor, "Would you like some grapes?" "Yes, and very thankful to you," was the ready answer. "Well, then, bring your basket." The basket was quickly brought and handed over the fence. The owner took it and disappeared among the vines; but I marked that he was depositing in it all the while, rich and various clusters from the fruitful labyrinth in which he had hid himself. The woman stood at the fence, the meanwhile, quiet and hopeful. At length he reappeared with a well-replenished basket, saying, "I have made you wait a good while, but, you know, *the longer you have to wait, the more grapes.*" So it is, with the great Giver of all gifts—*the longer He makes me wait, the more He gives.*

A lady in Switzerland, addressing a peasant who was working in his garden very early in the season, said: "I fear the plants which have come forward rapidly will yet all be destroyed by frost." "God has been our father a great while," was the reply.

"Patient waiting no loss," has been made the maximal title of an instructive volume, and "let patience have her perfect work," was one of the admirable suggestions of ancient wisdom. The history of every great achievement, and the realization of every grand idea, is the record of a corresponding patience on the part of the hero and the thinker. But for the large possession of this sublime quality, humanity must have succumbed to a thousand obstacles which have been gloriously overcome. The discoverer, the reformer—the benefactor of whatever class—has each in turn, since the world began, learned through his own experience the truth of the poet's line,

"They nobly win who watch and wait,"

and the story of any one of them is mainly the story of all. Patience is a lofty, a divine attribute.

Every man that has cultivated fruit, knows that no tree can bear

very rich the first year. The first year a tree bears, the fruit is of the lowest quality ; the second year it is a little better ; the fourth year it is better yet ; and it continues to improve every year until the tenth ; and then you begin to know what is the best thing that the tree can do. Trees have to go through a maturing process of ten years duration, before they can bear fruits of the highest flavors. So it is with man in the accomplishment of any good purpose. It is not until he has borne the fruits of industry, economy and good management in his profession or pursuit, whatever it may be, year after year, that he can bring them forth in their highest state of development. The tree must be planted and protected for a long time before it will bear any fruit at all, then it must continue to grow and to mature and produce year after year before it will yield its richest and most valuable harvest. And the wealth of its productions depend greatly too upon nurture and care, yet time can not be dispensed with.

One of the requisites for the successful training of children at home, or in the school-room, is patience. Every teacher and mother will find her labors made easy by the constant exercise of this cardinal virtue. Children are won by kind words ; but cross looks and harsh tones deter them from seeking our sympathy or giving us their confidence. The mother or teacher should regard the sports of children as a blessing, join in their innocent amusements, and draw from them some useful lesson for their future consideration. They should learn to look up to her as a friend in whom they could confide, who will bear patiently with their childish follies, and in kindness seek to improve whatever may be amiss in their manners or morals.

Ye have need of patience, that, after ye have done the will of God, ye might receive the promise. God's will is manifested in the way a man is made up. Some are fitted for one thing, and some for another : and the first thing for a man to find out is what he is good for, if it takes him half his life. And it is where, when a man seeks the things that are within the sphere of his faculties ; it is where when a man seeks right things that are attainable by him ; it is where, when a man uses proper instrumentalities, the result is delayed—it is there that patience is needed. Under such circumstances men have a right to expect results in proportion to their exertions. They have a right to look for effects from the causes which they operate.

There will however be cases where the best exertions put forth in the best manner, are not crowned with immediate success. But this does not change the laws of success. The general law of summer is

the growth and ripening of fruits and grains; and yet there is a law of storms and cold weather; and the tumultuous seasons throughout the summer may cut short the harvest and prevent the ripening of the fruit at the usual time. We must have patience and perhaps correct our calculations for another year. If you take the voyages from New York to Liverpool, you may say that the average time of the voyage of smart sailing vessels, through summer and winter is twenty-one days; but this period of three weeks is often departed from, and the time required for a voyage is sometimes four weeks, sometimes six weeks, and sometimes eight weeks. The relation between means and ends is so definite and so constant as to justify labor, and hope, and expectation; but in particular instances there may be a great disproportion of results. A man must not therefore be discouraged, if he does not get at a certain time the things which he seeks. He must make allowance for a change in circumstances.

Be and continue poor, young man, while others around you grow rich by fraud and dishonesty; bear the pain of defeated hopes, while others gain the accomplishment of theirs by flattery; forego the gracious pressure of the hand for which others cringe and crawl; wrap yourself in your own virtue, and seek a friend and your daily bread. If you have, in such a course grown gray with unblemished honor bless God and die.

There is an old Latin proverb, (*Festina lente*) which says, "hasten slowly." It is rarely that we find two words which express so much, or contain more food for thought. He that is hasty fishes in an empty pond.

"Shun all rash acts. Let moderation mark
Each enterprise in which you may embark;
And from your mind ne'er let there be effaced
The old, yet startling proverb, 'haste makes waste.'"

Do not be in a hurry to get rich. Gradual gains are the only natural gains; and they who are in haste to be rich, break over sound rules, fall into temptations and distress of various sorts, and generally fail of their object. There is no use of getting rich suddenly. The man who keeps his business under his control, and saves something from year to year, is always rich. At any rate, he possesses the highest enjoyment which riches are able to afford.

Progress of any kind is comparatively slow. Great results cannot be achieved at once, and we must be satisfied to advance in life as we walk, step by step. Christ did not count his converts by thousands, nor yet by tens, but he counted them by units, saying, "There is joy

in the presence of the angels of God over one sinner that repenteth." He valued individuals ; and yet at last shall he welcome his redeemed as an innumerable multitude, whom no man can number.

There are men who grow rapidly rich by the force of perspicacity, a singleness of purpose, and an energy of will, which would have made them distinguished in any department of human life, in any pursuit to which they may have been directed ; upon such men we ought not to look with envy, but with respect, and, while we should admire them the more, we ought not to think of ourselves the less, for all the great pecuniary difference, as long as we have been fast in our integrity in every strait, and in every temptation.

But suppose we have failed a dozen times, who knows but that it may be with us as it has been with multitudes before us, that past adversities are the foundations, constitute the elements, of future success, the very schoolings to great accomplishments.

Let every man, then, be diligent, and abide his time in patience, remembering that the race is not commonly, in practical life, to the swift, nor the battle to the strong ; and that ultimate and permanent success, is the pretty sure reward of him, who has patience, diligence, and a great heart.

Every man must patiently abide his time. He must wait. It is not in listless idleness ; not in useless pastime, not in querulous defection ; but in constant, steady, cheerful endeavor, always willing, fulfilling and accomplishing his task, that when the occasion comes he may be equal to the occasion. The talent of success is doing nothing more than what you can do well, without a thought of fame. If it comes at all it will come because it is deserved, and not because it is sought after.

I am surprised, said a certain old lady, that the little boys *will* knock the apples off the trees, when if let alone, they would so soon fall of themselves. I am surprised that men should *kill* each other so much, when in time they would all die of themselves. I am surprised that the girls *will* go after the young men so far, when otherwise they would much quicker come for *them* of their own accord.

Hundreds have attempted the definition of genius. When Sir Isaac Newton was asked for it, he replied, "Patience and Work." Sir Isaac would spend whole months in the examination of a single numerical relation, or the bearings of an angle of incidence, and if he was not then perfectly satisfied, other months were consumed in the same studies. Demosthenes, when wishing to make a great effort, would retire to some secret place, with his head shaved, so that de-

gency, if his love of glory failed, should prevent his appearance in public, and there, in bald-headed solitude, the orator forged his rhetorical thunderbolts, and with a new growth of locks, his beloved Athens received a new speech, which, to this day, is the delight of the scholar and the model of the greatest declaimers. The illustrious Fox pored over the mighty Greek for years; Brougham even yet makes him a close study. A celebrated English judge copied the text books of his profession no less than five times. Cuvier, the Prince of Naturalists, passed weeks in the examination of a single bone. What immense labor Agassiz must have gone through! What years of toil were those of Herschell!

The most beneficent operations of nature are the result of patience. The waters slowly deposit their rich alluvium; the fruits are months in their growth and perfecting.

To be wise we must diligently apply ourselves, and confront the same continuous application which our forefathers did; for labor is still, and ever will be, the inevitable price set upon everything which is valuable. We must be satisfied to work energetically with a purpose, and wait the results with patience. Buffon has even said of patience, that it is genius,—the power of great men, in his opinion, consisting mainly in their power of continuous working and waiting. All progress, of the best kind, is slow; but to him who works faithfully and in a right spirit, be sure that the reward will be vouchsafed in its own good time. "Courage and industry," says Granville Sharpe, "must have sunk in despair, and the world must have remained unimproved and unornamented, if men had merely compared the effect of a single stroke of the chisel with the pyramid to be raised, or of a single impression of the spade with the mountains to be leveled." We must continuously apply ourselves to right pursuits, and we cannot fail to advance steadily, though it may be unconsciously.

Hugh Miller modestly says, in his autobiography, "The only merit to which I lay claim is that of patient research,—a merit in which whoever wills may rival or surpass me; and this humble faculty of patience, when rightly developed, may lead to more extraordinary developments of idea than even genius itself.

Sir Astley Cooper, one of the most skillful and deserving in the medical ranks, in the first year of his practice netted only five guineas; in the second, £26; in the third, £64; in the fourth, £96; in the fifth, £100; in the sixth, £200; in the seventh, £400; in the eighth, £600; and in the ninth, £1,100. The highest amount he

ever received in any one year was £21,000, but for many years his average income was over £15,000, or \$75,000.

Patience is a good nag, says the proverb. Wisely and slow; they stumble that run fast. Always have a good stock of patience laid by, and be sure you put it where you can easily find it. Cherish patience as your favorite virtue. Always keep it about you. You will find use for it oftener than for all the rest. Moderation is the silken string running through the pearl-chain of all virtue. He who is impatient to become his own master is most likely to become merely his own slave. You can do anything if you will only have patience; water may be carried in a sieve, if you can only wait till it freezes. Those who at the commencement of their career, meet with less applause than they deserve, not unfrequently gain more than they deserve at the end of it; though having grounds at first to fear that they were born to be starved, they often live long enough to die of a surfeit.

Patience is a most necessary qualification for business; many a man would rather you heard his story than granted his request. You must seem to hear the unreasonable demands of the petulant unmoved, and the tedious details of the dull untired. That is the least price that a man must pay for a high station.

He hath made a good progress in business that hath thought well of it beforehand. Some do first, and think afterwards. Precipitation ruins the best laid designs; whereas patience ripens the most difficult, and renders the execution of them easy. That is done soon enough which is done well. Soon ripe, soon rotten. He that would enjoy the fruit, must not gather the flower. He calls to patience, who is patience itself; and he that gives the precept enforces it by his own example. Patience affords us a shield to defend ourselves, and innocence denies us a sword to defend others. Knowledge is power, but it is one of the slowest because one of the most durable of agencies. Continued exertion, and not hasty efforts, that lead to success. What cannot be cured must be endured. How poor are they that have not patience!

For violent fires soon burn out themselves:
Small showers last long, but sudden storms are short;
He tires betimes that spurs too fast betimes;
With eager feeding, food doth choke the feeder.

MANNERS.

THERE is no policy like politeness; and a good manner is the best thing in the world to get a good name or to supply the want of it.

Good manners are a part of good morals, and it is as much our duty as our interest to practice in both.

Good manners is the art of making those around us easy. Whoever makes the fewest persons uneasy is the best bred man in the company.

Good manners should begin at home. Politeness is not an article to be worn in all dress only, to be put on when we have a complimentary visit.

Nothing prevents a person from being natural and easy, so much as an extreme anxiety to appear so.

A man's own good breeding is the best security against other people's ill manners.

The beauty of behavior consists in the manner, not the matter, of your discourse.

An honest heart makes a *gentleman*; but honest modesty makes a *gentle manner*.

"Manners make the man," says the proverb. It may be true that some men's manners have been the making of them; but as manners are rather the expression of the man, it would be more proper to say—the man makes the manners.

Social courtesies should emanate from the heart, for remember always that the worth of manners consists in being the sincere expressions of feelings. Like the dial of the watch they should indicate that the work within is good and true.

The young should be mannerly, but they feel timid, bashful and self-distrustful the moment they are addressed by a stranger or appear in company. There is but one way to get over this feeling, and acquire easy and graceful manners, and that is to do the best they can at home as well as abroad. Good manners are not learned so much as acquired by habit. They grow upon us by use. We must be courteous, agreeable, civil, kind, gentlemanly, and manly at home, and then it will become a kind of second nature everywhere. A coarse rough manner at home begets a habit of roughness, which we can not lay off if we try, when we go among strangers. The most agreeable persons in company are those who are the most agreeable at home. Home is the school for all the best things.

Levity of manners is prejudicial to every virtue. Avoid all sourness and austerity of manners. Virtue is a pleasant and agreeable quality, and gay and civil wisdom is always engaging.

There are a thousand pretty, engaging little ways, which every person may put on, without running the risk of being deemed either affected or foppish. The sweet smile; the quiet, cordial bow; the earnest movement in addressing a friend—more especially a stranger—whom one may recommend to our good regards; the inquiring glance; the graceful attention, which is so captivating when united with self-possession: these will secure us the good regards of even a churl. Above all, there is a certain softness of manner which should be cultivated, and which, in either man or woman, adds a charm that always entirely compensates for a lack of beauty.

Lord Chatham, who was almost as remarkable for his manners as for his eloquence and public spirit, has thus defined good breeding: "Benevolence in trifles, or a preference of others to ourselves in the little daily occurrences of life.

Says Emerson, I wish cities would teach their best lesson—of quiet manners. It is the foible especially of American youth—pretension. The mark of the man of the world is absence of pretension. He does not make a speech; he takes a low business tone, avoids all brag, is nobody, dresses plainly, promises not at all, performs much, speaks in monosyllables, hugs his fact. He calls his employment by its lowest name, and so takes from evil tongues their sharpest weapon. His conversation clings to the weather and the news, yet he allows himself to be surprised into thought, and the unlocking of his learning and philosophy.

One of the most marked tests of character, is the manner in which we conduct ourselves toward others. A graceful behavior toward superiors, inferiors, and equals, is a constant source of pleasure. It pleases others because it indicates respect for their personality; but it gives tenfold more pleasure to ourselves. Every man may to a large extent be a self-educator in good behavior, as in everything else; he can be civil and kind, if he will, though he have not a penny in his purse.

Good manners, as we call them, are neither more nor less than good behavior; consisting of courtesy and kindness; for benevolence is the preponderating element in all kinds of mutually beneficial and pleasant intercourse amongst human beings. "Civility," said lady Montague, "costs nothing and buys everything." The cheapest of all things is kindness, its exercise requiring the least possible trouble

and self-sacrifice. Those little courtesies which form the small change of life, may separately appear of little intrinsic value, but they acquire their importance from repetition and accumulation. They are like the spare minutes, or the groat a day, which proverbially produce such momentous results in the course of a twelvemonth, or in a lifetime.

Manners are the ornament of action; and there is a way of speaking a kind word, or of doing a kind thing, which greatly enhances their value. What seems to be done with a grudge, or as an act of condescension, is scarcely accepted as a favor. Yet there are men who pride themselves upon their gruffness; and though they may possess virtue and capacity, their manner is often formed to render them almost insupportable. It is difficult to like a man who, though he may not pull your nose, habitually wounds your self-respect, and takes a pride in saying disagreeable things to you. There are others who are dreadfully condescending, and cannot avoid seizing upon every small opportunity of making their greatness felt.

The cultivation of manner,—though in excess it is foppish and foolish,—is highly necessary in a person who has occasion to negotiate with others in matters of business. Affability and good-breeding may even be regarded as essential to the success of a man in any eminent station and enlarged sphere of life; for the want of it has not unfrequently been found in a great measure to neutralize the results of much industry, integrity, and honesty of character. There are, no doubt, a few strong tolerant minds which can bear with defects and angularities of manner, and look only to the more genuine qualities; but the world at large is not so forbearant, and cannot help forming its judgments and likings mainly according to outward conduct.

Agreeable manners contribute wonderfully to a man's success. Take two men, possessing equal advantages in every other respect; but let one be gentlemanly, kind, obliging and conciliating; the other disobliging, rude, harsh and insolent, and the one will become rich while the other will starve.

If Christianity had no higher recommendation than this, that it makes a man a gentleman, it would still be an invaluable element. The New Testament inculcates good manners. Our Savior was courteous even to his persecutors. Look at Paul before Agrippa! His speech is a model of dignified courtesy as well as of persuasive eloquence. A spirit of kindly consideration for all men characterized the Twelve. The same mild, self-sacrificing spirit which pervaded the sayings and doings of the early disciples is exhibited by the true

followers of the cross at the present day. A man, it is true, may be superficially polite without being a Christian; but a Christian, by the very conditions of his creed and the obligations of his faith, is necessarily in mind and soul—and therefore in word and act—a gentleman.

PRINCIPLE AND RIGHT.

ONE man of unbending moral principle is mightier than a host of dishonest knaves; in his majestic presence they feel their own littleness and weakness and shame, and are ready to slink away lest they blush beneath the gaze of his calm, clear eye. It is a noble sight, worth going far to look at, the man who stands erect and serene, with his foot on the red dragon of temptation, its seven heads and ten horns crushed and trodden to dust! In all the world, there is no sight so grand and lovely as this. He is nobler than any coronet can make him. He is richer than gold or precious stones can make him. He is mightier than kings and one of the greatest conquerors, for all men rejoice in his victory. Even those who have not the courage to follow him in his conflicts, are glad to see him come forth from the life battle-field unscarred, and silently in their hearts they bless him.

Diminish principle, and you increase the need of force. A man had better be poisoned in his blood than in his principles. Men of principle are always the principal men. He that will win the game, must look more upon the mark, than the money; if he hits the one he takes the other. If a thing be not proper, do it not; if it be not true, speak it not. Prefer loss to unjust gain. Upright walking is sure walking. In all the affairs of life, let it be your care not to hurt your mind, nor offend your judgment. When doing what is right, the heart is easy, and becomes better every day; but when practicing deceit, the mind labors, and every day becomes worse.

Without established principles, our feelings contend against evil as an army without a leader, and are far oftener vanquished than victorious. Practice flows from principle; for as a man thinks so will he act.

No man has a right to do as he pleases, except when he pleases to do right. Never be afraid to do right; he that strives to please everybody pleases nobody. Men gravitate towards right, but are continually drawn aside by disturbing causes. Walk fast untill you get

upon the right ground, and then *stand* fast. When, in a case of doubtful morality, you feel disposed to ask, "Is there any harm in doing this?" answer it by asking yourself another, "Is there any harm in letting it alone?" None are so often in the wrong, as those who pretend to be always in the right. A man that does the best he can does all he should. Let a man do his best, and the world may do its worst. One, with God on his side, is a majority. Whatever the world may say, adhere to the right. Said Henry Clay, "I would rather be right than President." Do not a wrong action if you are satisfied that neither God nor man can know it.

P R O M P T I T U D E .

SIR Walter Scott, writing to a youth who had obtained a situation and asked him for his advice, gave him in reply this sound counsel: "Beware of stumbling over a propensity which easily besets you from not having your time fully employed,—I mean what the women call *dawdling*. Your motto must be, *Hoc age*. Do instantly whatever is to be done, and take the hours of recreation after business, never before it. When a regiment is under march, the rear is often thrown into confusion because the front do not move steadily, and without interruption. It is the same with business. If that which is first in hand is not instantly, steadily, and regularly dispatched, other things accumulate behind, till affairs begin to press all at once, and no human brain can stand the confusion."

Promptitude in action may be stimulated by a due consideration of the value of time. An Italian philosopher was accustomed to call time his estate; an estate which produces nothing of value without cultivation, but, duly improved, never fails to recompense the labors of the diligent worker. Allowed to lie waste, the products will be only noxious weeds and vicious growths of all kinds.

Men of business are accustomed to quote the maxim that Time is Money, but it is much more; the proper improvement of it is self-culture, self-improvement, and growth of character. An hour wasted daily on trifles or in indolence, would, if devoted to self-improvement, make an ignorant man wise in a few years, and, employed in good works, would make his life fruitful, and death a harvest of worthy deeds. Fifteen minutes a day devoted to self-improvement, will be felt at the end of the year. Good thoughts and carefully gathered

experience take up no room, and are carried about with us as companions everywhere, without cost or incumbrance. An economical use of time is the true mode of securing leisure; it enables us to get through business and carry it forward, instead of being driven by it. On the other hand, the miscalculation of time involves us in a perpetual hurry, confusion, and difficulties; and life becomes a mere shuffle of expedients, usually followed by disaster. Nelson once said, "I owe all my success in life to having been always a quarter of an hour before my time."

Some take no thought of the value of money until they have come to an end of it, and many do the same with their time. The hours are allowed to flow by unemployed, and then, when life is fast waning, they bethink themselves of the duty of making a wiser use of it. But the habit of listlessness and idleness may already have become confirmed, and they are unable to break the bonds with which they have permitted themselves to become bound. Lost wealth may be replaced by industry, lost knowledge by study, lost health by temperance or medicine, but lost time is gone forever.

The prudent use of time, rather than extraordinary natural power, has been the secret of success, in a vast majority of instances among those who have been distinguished for extraordinary results.

Any business you may have to transact should be done the first opportunity, and finished, if possible, without interruption. Business must not be sauntered and trifled with, and you must not say to it as Felix did to Paul, "At a more convenient season I will speak to thee." The most convenient season for business is the first; but study and business, in some measure, point out their own times, to a man of sense. Business, of any kind, should never be done by halves, but every part of it should be well attended to, for he that does business ill had better not do it at all.

It is astonishing how much an energetic man of business can accomplish by methodical working, and by the careful economy of his time. It would even appear as if the more business he had the more leisure he had for other affairs.

C O U R A G E .

All men begin life with fear. The child is full of fears, because of weakness and ignorance. Water, fire, the cat, the dog, the wall he

bumps his head against, the chair or table he pulls down upon him, are the enemies of the child, which he only masters by knowledge. All men begin life with fear; and when one person in a company spoke of one who "never knew what fear was," Dr. Johnson replied, "Then he never snuffed a candle with his fingers." Courage is presence of mind; self-possession. Knowledge aids it. Cowardice, fear, shuts the eyes, freezes the juices. It was said very well by Montaigne, that the only thing he was afraid of was of being frightened. Cowardice "shuts the eyes until the sky is no bigger than a calf-skin." Fear is cowardly and mean, until at last, we do not know virtue when we see it. There is a total perversion of things; society is upside down, and its best men are thought too bad to live. It has been said that courage is the greatest of all virtues, because unless a man has that virtue, he has no security for any other. Each has his own courage, as his own talent. Bonaparte said, "My hand is instantly connected with my head, and what I say, that I do, or die." So it is with the hero. The brave man believes in his thought, and obeys it, nothing doubting that it will bring him out well.

But far above the courage of blood is the courage of character—the will. There are many books on the will. There is Edwards, and Hopkins, and Kant, and Hegel, but it remains a mystery and a miracle, and when it appears in a man he is a hero, and all the metaphysics in the world is dumb before him, and shares the astonishment. As soon as we rise to the heights of courage, we come to the grand models of mankind. We have come to the secret of the will, which is the antagonist of fate, which is the presence always of spiritual power, the presence of God in man—always miraculous, and "past finding out."

If there is any man who has no faith in a Beneficent Power above us, but sees only an adamant fate coiling its inevitable folds about men, to him I say, the best use of fate is to teach us courage, like the Turk. Go face the fire at sea, or the cholera in a friend's house, or the burglar in your own, or whatever danger lies in the way of duty, knowing that you are guarded by destiny.

Nothing that is of real worth can be achieved without courageous working. Man owes his growth chiefly to that active striving of the will, that encounter with difficulty, which we call effort; and it is astonishing to find how often results apparently impracticable are thus made possible. An intense anticipation itself transforms possibility into reality; our desires being often but the precursors of the things which we are capable of performing. On the contrary, the timid and

hesitating find everything impossible, chiefly because it seems so. It is related of a young French officer, that he used to walk about his apartment exclaiming, "I *will* be Marshall of France and a great general." This ardent desire was the presentiment of his success; for he did become a distinguished commander, and he died a marshall of France.

Some years ago, a naval officer wishing to cross from Staten Island to Bergen, could find no person willing to undertake the job save a bare-footed boy, who, despite the roughness of the sea, bravely rowed him to the place of destination. The officer was so pleased with his pluck that he got him a situation on a steamer, and that boy was Cornelius Vanderbilt, who is now worth over \$13,000,000.

To believe a business impossible, is the way to make it so. How many feasible projects have miscarried through despondency, and been strangled in the birth by a cowardly imagination. It is better to meet danger than to wait for it. A ship on a lee shore stands out to sea in a storm to escape shipwreck. Impossibilities, like vicious dogs, fly before him who is not afraid of them. Should misfortune overtake, retrench—work harder—but never fly the track—confront difficulties with unflinching perseverance. Should you then fail, you will be honored; but shrink, and you will be despised. When you put your hands to a work, let the fact of your doing so constitute the evidence that you mean to prosecute it to the end. Stand like a beaten anvil. It is the part of a great champion to be stricken and conquer.

Courage, like cowardice, is undoubtedly contagious, but some persons are not at all liable to catch it. The attention of restless and fickle men turns to no account; poverty overtakes them whilst they are flying so many different ways to escape it. What is called courage is oftentimes nothing more than the fear of being thought a coward. The reverence that restrains us from violating the laws of God or man is not unfrequently branded with the name of cowardice. The Spartans had a saying, that he who stood most in fear of the law generally showed the least fear of an enemy. And we may infer the truth of this from the reverse of the proposition, for daily experience shows us that they who are the most daring in a bad cause are often the most pusillanimous in a good one.

Plutarch says courage consists not in hazarding without fear, but by being resolute in a just cause. An officer, after a very severe battle, on being complimented on standing his ground firmly, under a terrible fire, replied, "Ah, if you knew how I was frightened, you

would compliment me more still." It is not the stolid man, or the reckless man, who exhibits the noblest bravery in the great battle of life. It is the man whose nerves and conscience are all alive; who looks before and behind; who weighs well all the probabilities of success or defeat, and is determined to stand his ground. There is another fine anecdote *apropos* to this subject: A phrenologist examining the head of the Duke of Wellington, said, "Your Grace has not the organ of animal courage largely developed." "You are right," replied the great man, "and but for my sense of duty I should have retreated in my first fight." This first fight, in India, was one of the most terrible on record. O, that word "duty!" What is animal courage compared with it? Duty can create that courage, or its equivalent, but that courage never can create *duty*. The Duke of Wellington saw a man turn pale as he marched up to a battery. "That is a brave man," said he, "he knows his danger and faces it."

To lead the forlorn hope in the field of carnage requires less nerve than to fight nobly and unshrinkingly the bloodless battle of life. To bear evil speaking and illiterate judgment with equanimity, is the highest bravery. It is, in fact, the repose of mental courage.

No one can tell who the heroes are, and who the cowards, until some crisis comes to put us to the test. And no crisis puts us to the test that does not bring us up alone and single-handed to face danger. It is nothing to make a rush with the multitude even into the jaws of destruction. Sheep will do that. Armies might be picked from the gutter, and marched up to make food for powder. But when some crisis singles one out from the multitude, pointing at him the particular finger of fate, and telling him, "Stand or run," and he faces about with steady nerve, with nobody else to stand behind, we may be sure the hero stuff is in him. When such a crisis comes, the true courage is just as likely to be found in people of shrinking nerves, or in weak and timid women, as in great burly people. It is a moral, not a physical trait. Its seat is not in the temperament, but the will. How courageous Peter was, and all those square-built fishermen of the sea of Galilee, at the Last Supper, and in the garden of Gethsemane, where Peter drew his sword and smote the officer! But when Christ looked down from his cross, whom did he see standing in that focus of Jewish rage? None of those stout fishermen, but a young man and a tender-hearted woman—John and Mary.

A good cause makes a courageous heart. They that fear an overthrow, are half conquered. To be valorous is not always to be venturesome. A warm heart requires a cool head; courage without con-

duct is like fancy without judgment, all sail and no ballast. True valor protects the feeble, and humbles the oppressor. Have the courage to show your respect for honesty in whatever guise it appears; and your contempt for dishonesty and duplicity, by whomsoever exhibited. The moral courage which will face obloquy in a good cause, is a much rarer virtue than the physical valor, which will confront death in a bad one. The moral hero is one whose voice is often at first alone, a still small voice in the moral desert against the wind and the earthquake and the fire of strong and evil passion.

Do not be discouraged by obstacles. Despair is the result of doubt. Doubt God's fatherliness, man's brotherliness, and the need of your own soul, and you have begun, unconsciously, to twist the three cords in the cable of despair, which the Devil waits to coil round you and tie in a Gordian knot—defying every hand save His beneath whose lightest finger-touch the most perplexing tangle of mystery is swept away, as easily as the gossamer web that glimmers on the grass. Doubt is the beginning of error.

“——Our doubts are traitors,
And make us lose the good we might win
By fearing to attempt.

Two instances occurred in the recent riot in New York, which show what the courage of a single man may do. The mob threatened and approached a house. One man, not its owner, nor his friend, stood on the steps as the crowd came on. The leader rushed forward. Said this hero: “You shall enter this house only over my dead body.” They stopped, hesitated, swore, and retreated, leaving the house unharmed. One brave heart protected it. A negro was pursued by a howling mob of thirty or forty, bent on killing him. Hundreds saw it, and stirred not; lifted not voice or hand to defend him. But there was one man not a coward. He ran forward, threw his arm about the negro, faced the mob, drew his revolver, and announced, “The first man who approaches, dies.” And he saved him.

A robber recently broke into a house at Debreezin, Hungary, there being only the daughter, aged seventeen, of the occupants at home, except an old man, whom he killed on entering. He demanded her father's property, and told her she must die, lest she should cause his arrest. Seeing he was in earnest, she begged to be allowed to die by a swift poison, to which he consented. She took a bottle from a shelf, raised it to her lips, and then suddenly dashed the contents

into his face and eyes. He fell howling to the floor, and next day died. The bottle contained oil of vitriol!

An instance of the truest kind of courage is related of a little drummer boy in one of our regiments, who had become a great favorite with many of the officers, by his unremitting good nature. He happened on one occasion to be in the officers' tent when the bane of the soldier's life passed round. A captain handed a glass to the little fellow, but he refused it, saying, "I am a cadet of temperance, and do not taste strong drink."

"But you must take some now. I insist on it. You belong to our mess to-day, and cannot refuse." Still the boy stood firm on the rock of total abstinence, and held fast to his integrity.

The captain, turning to the major, said: "H—— is afraid to drink; he will never make a soldier."

"How is this?" said the major, playfully; and then assuming another tone, added, "I command you take a drink, and you know it is death to disobey orders."

The little hero, raising his young form to its full height, and fixing his clear blue eyes, lit up with unusual brilliancy, on the face of the officer, said, "Sir, my father died a drunkard; and when I entered the army I promised my dear mother, on my bended knees, that by the help of God I would not taste a drop of rum, and I mean to keep my promise. I am sorry to disobey your orders, sir; but I would rather suffer than disgrace my mother, and break my temperance pledge."

CONTENTMENT.

CONTENTMENT excludes all murmuring and repining at the allotments of providence, all solicitude and anxious thoughts about future events, further than such precautions as are within the sphere of human prudence. Contentment is to be found only within ourselves. A man that is content with a little, has enough; he that complains has too much. To prize everything according to its *real* use ought to be the aim of a rational being. There are few things which can much conduce to happiness, and, therefore, few things to be ardently desired. He that looks upon the business and bustle of the world with the philosophy with which Socrates surveyed the fair at Athens, will turn away at last with his exclamation—"How many things are here which I do not want."

Those who are contented with a little deserve much ; and those who deserve much are far the most likely persons to be contented with a little. Contentment is oftener made of cheap materials than of dear ones. What a glorious world this would be, if all its inhabitants could say with Shakespeare's shepherd : " Sir, I am a true laborer, I earn that I wear ; owe no man hate ; envy no man's happiness ; glad of other men's good ; contented with my farm." Half the discontent in the world arises from men regarding themselves as centers instead of the infinitesimal segments of circles. Be contented with enough ; you may butter your bread until you are unable to eat it. Enough is as good as a feast. When you feel dissatisfied with your circumstances, look at those beneath you. There are minds, said John Quincy Adams, which can be pleased by honors and preferments, and I can see nothing in them save envy and enmity. It is only necessary to possess them to know how little they contribute to happiness. I had rather be shut up in a very modest cottage, with my books, my family, and a few old friends, dining upon simple bacon and hominy and letting the world roll on as it likes, than to occupy the most high places which human power can give.

The truest content is that which no man can deprive you of. Quaint old Andrew Fuller writes truly that contentment consisteth not in adding more fuel, but in taking away some fire ; not in multiplying wealth, but in subtracting men's desires. Worldly riches, like nuts, tear men's clothing in getting them, spoil men's teeth in cracking them, but fill no belly in eating them. When Alexander saw Diogenes sitting in the warm sun, and asked what he should do for him ? he desired no more than that Alexander would stand out of his sunshine, and not take from him what he could not give. A quiet and contented mind is the supreme good ; it is the utmost felicity a man is capable of in this world : and the maintaining of such an uninterrupted tranquility of spirit is the very crown and glory of wisdom.

Nature teaches us to live, but wisdom teaches us to live contented. Contentment is opposed to fortune and opinion, it is the wealth of nature, for it gives everything we either want or need. The discontents of the poor are much easier allayed than those of the rich. Solon, being asked by Cræsus, who in the world was happier than himself, answered, Tellus ; who, though he was poor, was a good man, and content with what he had, and died in a good old age. No line holds the anchor of contentment so fast as a good conscience. This cable is so strong, and compact, that when force is offered to it, the straining rather strengthens, by uniting the parts more close. The foun-

dation of contentment in all conditions, and of patience under all sufferings is that when death, which is not far off, removes us out of this world, it will take us from all the sufferings of it. To be in a low condition, and contented, affords the mind an exquisite enjoyment of what the senses are robbed of. If therefore thou would'st be happy bring thy mind to thy condition.

Our soveriegn remedy against discontent, is constancy of mind. Nothing is above him that is above fortune. We must needs have some concern when we look into our losses; but if we consider how little we deserve what is left, our murmurs will turn into thankfulness. If we would begin at the right end, and look with as much compassion on the adversities of some, as we do with envy at the prosperity of others, every man would find cause to sit down contented with his own burden. There is no wise man, that would change persons and conditions entirely with any man in the world.

The contented man is independent of the whole world; he feels a kind of property in all he sees. An eccentric wealthy gentleman stuck up a board in a field upon his estate, upon which was painted the following—"I will give this field to any man contented." He soon had an applicant. "Well, sir, are you a contented man?" "Yes, sir, very." "Then what do you want with my field?" The applicant did not stop to reply.

An old man said, "When I was young, I was poor; when old, I became rich; but in each condition I found disappointment. When the faculties of enjoyment were mine, I had not the means; when the means came, the faculties were gone.

Happiness only begins when wishes end; and he who hankers after more enjoys nothing.

A short while ago as we sat thinking over the frailties of our race, our eye chanced to fall upon the web of a spider, around which was playing an unsuspecting fly, unconscious of the danger which surrounded it. The wary spider scanned closely its movements, but stirred not, calmly biding his time. He had not long to wait; the fly, charmed with the beauty of the nest, soon made the fatal plunge. No sooner trapped, than, with fearful bounds, it sought to free itself; and for a time the contest seemed doubtful. While they were warring for the mastery, another noble prize was entrapped; but the spider, true to its interest, made no effort whatever to secure it, but sought rather the securement of that which was still in jeopardy. And as we reflected on the spider's course, we found that it had been

wise and proper; for, had he loosened his hold upon one, both would doubtless have eluded his grasp.

How instructive the lesson—and how unlike the course pursued by man! He, not content to secure enough, is ever grasping for more. And how often does he in grasping for everything get nothing. Let us henceforth learn wisdom from the spider. It teaches the one great lesson of happiness—contentment.

LABOR.

LABOR is the parent of all the lasting wonders of the world, whether in verse or in stone. The sweat-drop is the jewel in the coronet of toil. Physical labor relieves us of physical pain; this constitutes the happiness of the poor. A popular author says, I have no propensity to envy any one, least of all the rich and great; but if I were disposed to this weakness, the subject of my envy would be a healthy young man, in full possession of his strength and faculties, going forth in a morning to work for his wife and children, or bringing home his wages at night.

The day-laborer, who earns with horny hand and the sweat of his face, coarse food for a wife and children whom he loves, is raised, by this generous motive to true dignity, and, though wanting the refinements of life, is a nobler being than those who think themselves absolved by wealth from serving others.

Labor drives away three of our most inveterate enemies, viz: ennuï, vice, and poverty. Would you be an honest man and enjoy competency with pleasure, unknown to hasty wealth or sly roguery? Work! Let your sweat-drops wash your gains from all dishonesty. You shall live to tell your children that you have observed and felt the wisdom of the royal preacher:—Wealth gathered by vanity shall be diminished, but wealth gathered by labor will increase.

Never anticipate wealth from any other source than labor. God gives every bird its food, but does not throw it into the nest. He who acquires riches without labor, generally lavishes them without care. Frugality is as closely connected with industry as idleness is with vice. To love and to labor is the sum of living, and yet how many think they live who neither love nor labor.

Labor is life! 'Tis the still water faileth;
Idleness ever despaireth, bewaileth;
Keep the watch wound, or the dark rust assaileth!

Facility helps to accomplish, but does not accomplish anything; it goes faster, but never as far as labor. There is no excellence without great labor. Dr. Johnson says: All would be losers were all to work for all; they would have no intellectual improvement. All intellectual improvement arises from leisure; all leisure arises from one working for another.

The noblest thing in the world is honest labor. It is the very preservative principle of the universe. Wise labor brings order out of chaos; it turns deadly bogs and swamps into grain-bearing fields; it rears cities; it adorns the earth with architectural monuments, and beautifies them with divinest works of art; it whitens the seas with the wings of commerce; it brings remote lands into mutual and profitable neighborhood; it binds continents together with the fast-holding bands of railroads and telegraphs; it extinguishes barbarism and plants civilization upon its ruins; it produces mighty works of genius in prose and verse, which gladden the hearts of men forever. Work, therefore, with pride and gladness, for thereby you will be united by a common bond with all the best and noblest who have lived, who are now living, and who shall ever be born.

No man has the right to expect a good fortune, unless he goes to work and deserves it. Luck! cried a self-made man, I never had any luck but by getting up at five every morning and working as hard as I could. No faithful workman finds his task a pastime. We must all toil or steal—no matter how we name our stealing. A brother of the distinguished Edmund Burke was found in a reverie after listening to one of his most eloquent speeches in Parliament, and being asked the cause, replied, "I have been wondering how Ned has contrived to monopolize all the talents of the family; but then I remember, when we were at play he was always at work.

The fault, dear Brutus, is not in our stars,
But in ourselves that we are underlings.

Plato often inculcates this great precept: "Do thy own work, and know thyself." Never defer that till to-morrow which you can do to-day; never do that by proxy which you can do yourself. If you want a thing done, go; if not, send. Plan no more than you can execute, and execute all you plan.

Let no poor boy, after reading the following interesting fact, ever despair of making a comfortable living: A gentleman was once walking down the streets of P——, when a beggar loudly craved for a few coppers for a night's lodging. The gentleman looked earnestly

at the poor man and inquired, "Why do you not work? You should be ashamed of begging." "O, sir, I do not know where to get employment." "Nonsense!" replied the gentleman, "you can work if you will. Now listen to me. I was once a beggar like you. A gentleman gave me a crown-piece and said to me, 'Work, and don't beg; God helps those who help themselves.' I immediately left P——, and got out of the way of my old companions. I remembered the advice given me by my mother before she died, and I began to pray to God to keep me from sin, and to give me His help day by day; I went round to the houses in the country places, and with a part of my five shillings bought old rags. These I took to the paper mills and sold them at a profit. I was always willing to give a fair price for the things I bought, and did not try to sell them for more than they were worth. I determined to be honest, and God prospered me. My purchases and profits became larger, and now I have got more than ten thousand crown-pieces that I can call my own. One great thing that has contributed to my success is this: I have kept from drink and tobacco." As the gentleman spoke he took out his purse, and drew from it a five-shilling piece, and handing it to the astonished beggar, he said: "Now, you have the same chance of getting on in the world as I had. Go and work, and never let me see you begging again. If you do, I will hand you over to the police." Years passed away. The gentleman had forgotten the circumstance, until one day, when traveling through P——, he entered a respectable looking bookseller's shop, in order to purchase some books that he wanted. He had not been many minutes in conversation with the bookseller, before the latter eagerly looked into the face of his customer and inquired: "Sir, are you not the gentleman who, a few years ago, gave a five-shilling piece to a poor beggar at the end of this street!" "Yes, I remember it well." "Then, sir, this home, this well-stocked shop, is the fruit of that five-shilling piece." Tears of gratitude trickled down his cheeks, as he introduced the gentleman to his happy wife and children. He was regarded as their benefactor. When gathered round the table to partake of tea, the bookseller recounted his history from the above eventful day. It was very similar to that of the welcome visitor. By industry, honesty, and dependence upon God's help, he had risen step by step, from buying rags to selling papers and tracts in the streets, then to keeping an old book shop, and ultimately to be owner of one of the best circulating libraries in the place. Before the happy party separated, the large old family Bible was brought, out of which a psalm of thanks-

giving was read, and then all bent round the family altar. Words could not express their feelings.

The mere drudgery undergone by some men in carrying out their undertakings has been something extraordinary; but the drudgery they regarded as the price of success. Addison amassed as much as three folios of manuscript materials before he began his "Spectator." Newton wrote his "Chronology" fifteen times over before he was satisfied with it; and Gibbon wrote out his "Memoir" nine times. Hale studied for many years at the rate of sixteen hours a day, and when weary with the study of the law, he would recreate himself with philosophy and the study of the mathematics. Hume wrote thirteen hours a day while preparing his "History of England." Montesquieu, speaking of one part of his writings, said to a friend, "You will read it in a few hours; but I assure you it cost me so much labor that it has whitened my hair."

Professor Lane, in his preface to his Arabic-English Lexicon, makes the following remarks as to the labor expended on that work:

"Nearly twenty years have now elapsed since I commenced this work. Had I foreseen that the whole labor of the composition must fall upon me, or the project be abandoned, and had I foreseen the length of time that it would require of me, unaided, I should certainly not have had the courage to undertake it. * * * For seven years, in Cairo, I prosecuted my task on each of the work-days of the week, after an early breakfast until within an hour of midnight, with few and short intervals of rest, (often with no interruption but that of a few minutes at a time for a meal, and half an hour for exercise,) except on rare occasions when I was stopped by illness—and once when I devoted three days to a last visit to the Pyramids. I seldom allowed myself to receive a visitor, except on Fridays, the Sabbath and leisure day of the Muslims, and more than once I passed a quarter of the year without going out of my house. * * * To convey a due idea of the difficulties of my task would be impossible. While mainly composing from the 'Taj-el-Aroos,' I have often had before me, or by my side, eight or ten other lexicons, presenting three different arrangements of the roots, and all of them differing in the order, or rather in the disorder, of the words explained, requiring to be consulted at the same time; and frequently more than a day's study have been necessary to enable me thoroughly to understand a single passage.

Dr. Tyng stated in an anniversary sermon that he had brought to confirmation 1,417 persons; received to first communion 1,627 per-

sons; married 615 couples; delivered 6,550 sermons, and addresses at more than 1,000 funerals; and that he had been the means of raising \$1,218,242 for religious purposes.

Bayard Taylor, in a farewell letter to the *New York Mercury*, thus sums up his labors for six months: "Two hundred and fifty lectures, thirty thousand miles travel, forty-eight *Mercury* articles, two books published, and one house built."

Don't live in hope with your arms folded; fortune smiles on those who roll up their sleeves, and put their shoulders to the wheel. You cannot dream yourself in a character; you must hammer and forge yourself one. To love and to labor is the sum of living, and yet how many think they live who neither love nor labor.

To labor is the destiny of man. It was his normal condition before the fall, and his necessary condition afterwards. The curse pronounced upon the earth caused no change in this respect. What previously was his pleasure now became his necessity. Every law of man's nature, both before and after the fall, protested against idleness. Without effort no development, no strength, no compensation, can be secured. It is this that gives utility, and value and beauty, to all physical productions. And he who refuses or neglects to perform some part in increasing the vital values of the physical or mental world, not only violates the law of his own nature, but is a cumberer of the ground, and a sinner against God. The same conditions of success, the same penalties for idleness, exist in the spiritual world. Effort is everywhere the essential requisite of success. "My Father worketh hitherto, and I work," was the exclamation of Jesus, as he surveyed all that divinity was accomplishing for the salvation of man, and in a parable intended to sum up the whole duty of man in every stage of life, he says, "Go work to-day in my vineyard." "Work while it is day," seems to be the universal command, binding on every Christian.

The late Rev. W. Blunt once requested a lady whom he thought qualified, to take some charge in district visiting, or some kindred engagement. She answered him, rather declining the proposal.

"My stay here will probably be too short for me to be of any use. I do not know that I shall be here three months."

His answer was brief, calm, and solemn:

"I do not know that I shall be here one."

He alluded to his time and life in this present world. She saw his meaning, and answered no more, and heartily embraced the work offered her to do. In God's sight, time has in reality no remnants,

no shreds, no patches to be thrown away; and the habit of speedy and ready application of our faculties is one of the most important acquisitions which can possibly be formed.

"But if any provide not for his own, and specially for those of his own house, he hath denied the faith, and is worse than an infidel."

A useful, toiling life may be a perpetual prayer, as it is a perpetual hymn.

THE TRUE GENTLEMAN.

A GENTLEMAN is a man who is gentle. Titles—graceful accomplishments—superior culture—princely wealth—great talents—genius—do not constitute a man with all the attributes needed to make him a gentleman. He may be awkward—angular, homely, or poor—and yet belong to the uncrowned aristocracy. His face may be bronzed at the forge or bleached in the mill—his hand huge and hard—his patched vest, like Joseph's coat of many colors—and he may still be a true gentleman. The dandy is a dry goods sign, and not a gentleman, for he depends upon dress, and not upon his honor and virtue, for his passport to the best circles of society. "The man who has no money is poor—he who has nothing but money is poorer than he," and is not a gentleman. * Some of the most distinguished men in the world of letters—in the world of art—have been unamiable—gross—vulgar—ungentle, consequently not gentlemen.

"You are a plebian," said a patrician to Cicero. "*I am a plebian*," said the eloquent Roman; "the nobility of my family begins with me; that of yours will end with you." I hold no man deserves to be crowned with honor whose life is a failure; and he who lives only to eat and drink and accumulate money is a failure. The world is no better for his living in it. He never wiped a tear from a sad face—never kindled a fire upon a frozen hearth. I repeat with emphasis, he is a failure. There is no flesh in his heart; he worships no God but gold.

There is true dignity in labor, and no true dignity without it. He who looks down scornfully on labor is like Hermes, who had a mouth and no hands, and yet made faces at those who fed him—mocking the fingers that brought bread to his lips.

He who writes a book, or builds a house, or tills a farm, or follows any useful employment, lives to some purpose, and contributes something to the fund of human happiness.

Garibaldi, the greatest hero of the age, is a working man. Henry

Clay was "the mill-boy of the slashes." Daniel Webster knit his iron frame into strength by working on his father's farm when young.

A gentleman is a human being, combining a woman's tenderness with a man's courage.

One very frequently hears the remark made, that such and such a man "can be a gentleman when he pleases." Now when our reader next hears this expression made use of, let him call to mind the following: He who "can be a gentleman when he pleases," never pleases to be anything else.

The forbearing use of power is a sure attribute of the gentleman; indeed, we may say that power—physical, moral, purely social or political—is one of the touchstones of genuine gentlemanship. The power which the husband has over his wife, in which we must include the impunity with which he may be unkind to her; the father over his children; the old over the young; and the young over the aged; the strong over the weak; the officer over his men; the master of a vessel over his hands; the magistrate over the citizens; the employer over the employed; the rich over the poor; the educated over the unlettered; the experienced over the confiding; the keeper of a secret over him whom it touches; the gifted over the silly—the forbearing and inoffensive use of all this power or authority, or a total abstinence from it where the case admits it, will show the gentleman in a plain light. Every traveler knows at once whether a gentlemanly or a rude officer is searching his trunk. But not only does the use of power form a touchstone; even the manner in which an individual enjoys certain advantages over others, is a test. No gentleman can boast of the delights of superior health in the presence of a languid patient, or speak of great good luck when in hearing of a man bent down by habitual misfortune. Let the man who happily enjoys the advantages of a pure and honest life, speak of it to a fallen fellow being, and you will soon see whether he be, in addition to his honesty, a gentleman or not. The gentleman does not needlessly and unceasingly remind an offender of a wrong he may have committed against him. He cannot only forgive, he can forget; and he strives for that nobleness of soul and manliness of character which impart sufficient strength to let the past be truly past. He will never use the power which the knowledge of an offence, a false step, or an unfortunate exposure of weakness gives him, merely to enjoy the power of humiliating his neighbor. A true man of honor feels humbled himself when he cannot help humbling others.

The true gentleman is courteous and affable to his neighbors. As

the sword of the best-tempered metal is the most flexible, so the truly generous are the most pliant and courteous in their behavior to their inferiors.

The true gentleman is one whose nature has been fashioned after the highest models. His qualities depend not upon fashion or manners, but upon moral worth,—not on personal possessions, but on personal qualities. The psalmist briefly describes him as one “that walketh uprightly, and worketh righteousness, and speaketh the truth in his heart.”

The gentleman is eminently distinguished by his self-respect. He values his character,—not so much of it only as can be seen by others, but as he sees it himself; having regard for the approval of his inward monitor. And, as he respects himself, so, by the same law, does he respect others. Humanity is sacred in his eyes; and thence proceed politeness and forbearance, kindness and charity.

The true gentleman has a keen sense of honor,—scrupulously avoiding mean actions. His standard of probity in word and action is high. He does not shuffle nor prevaricate, dodge nor skulk; but is honest, upright, and straightforward. His law is rectitude,—action in right lines. When he says *yes*, it is a law; and he dares to say the valiant *no* at the fitting season. The gentleman will not be bribed; only the low-minded and unprincipled will sell themselves to those who are interested in buying them.

Riches and rank have no necessary connection with genuine gentlemanly qualities. The poor man may be a true gentleman,—in spirit and in daily life. He may be honest, truthful, upright, polite, temperate, courageous, self-respecting, and self-helping,—that is, be a true gentleman. The poor man with a rich spirit is in all ways superior to the rich man with a poor spirit. To borrow St. Paul's words, the former is as “having nothing, yet possessing all things,” while the other, though possessing all things, has nothing. The first hopes everything, and fears nothing; the last hopes nothing, and fears everything. Only the poor in spirit are really poor. He who has lost all, but retains his courage, cheerfulness, hope, virtue, and self-respect, is still rich. For such a man, the world is, as it were, held in trust; his spirit dominating over its grosser cares, he can still walk erect, a true gentleman.

Above all the gentleman is truthful. He feels that truth is the “summit of being,” and the soul of rectitude in human affairs. Lord Chesterfield, with all his French leanings, when he came to define a gentleman, declared that truth made his success.

True courage and gentleness go hand in hand. The brave man is generous and forbearant, never unforgiving and cruel. It is said of Sir John Franklin that "he was a man who never turned his back upon a danger, yet of that tenderness that he would not brush away a mosquito."

Gentleness is indeed the best test of gentlemanliness. A consideration for the feelings of others, for his inferiors and dependants as well as his equals, and respect for their self-respect, will pervade the true gentleman's whole conduct. He will rather himself suffer a small injury than, by an uncharitable construction of another's behavior, incur the risk of committing a great wrong. He will be forbearant of the weaknesses, the failings, and the errors, of those whose advantages in life have not been equal to his own. He will be merciful even to his beast. He will not boast of his wealth, or his strength or his gifts. He will not confer favors with a patronizing air.

The true gentleman is God's servant, the world's master, and his *own* man; virtue his business, study his recreation, contentment his rest, and happiness his reward; God is his father, the Church is his mother, the saints his brethren, all that need him his friends; devotion is his chaplain, chastity his chamberlain, sobriety his butler, temperance his cook, hospitality his housekeeper, Providence his steward, charity his treasurer, pity his mistress of the house, and discretion his porter, to let in or out, as most fit. This is the whole family, made up of virtues, and he is the true master of the house. He is necessitated to take the world on his way to heaven; but he walks through it as fast as he can, and all his business by the way is to make himself and others happy. Take him in two words—a man and a Christian.

SUCCESS.

THE generally accepted theory that fortune is a fickle dame, turning her smiles or her frowns upon whom she will without any regard to merit, is false and dangerous in its influence upon youth. There is nothing it seems to me more evident than that everything in the universe is governed by the strictest laws. And as in the planetary system myriads of orbs revolve in resplendent order around one common center, directed in all their course by fixed and unchanging

laws so complicated that the slightest variation on the part of any one body must end in universal "wreck of matter and crash of worlds," so in human life every cause produces its legitimate effect, every action is followed by its legitimate consequence. Every man is the architect of his own fortune, and his success or failure depends upon the course he takes, the amount of experience, common sense, and energy he possesses, and the devotion and perseverance with which he applies himself to the accomplishment of his purpose. Every one don't succeed because every one don't try. A wrong philosophy of life destroys the attainment of a thousand triumphs. The young man who believes that he may or may not succeed according to the whims of the fickle little lady fortune may float along finely for a time. Every breeze may be as propitious as heart could wish and every current favorable. But darkness always follows the sunshine, and storms the calm. Such an one is apt—in fact is almost certain to look upon these changes of nature as the "slings of outrageous fortune," directed especially against himself, and with which it is folly for him to contend, instead of considering them (as they really are) the natural and necessary attendants of life, by which its stream is kept pure, and its voyageurs in healthful action.

Who are the successful men? They are those who when boys were compelled to work either to help themselves or their parents, and who when a little older were under the stern necessity of doing more than their legitimate share of labor; who as young men had their wits sharpened by having to devise ways and means of making their time more available than it would be under ordinary circumstances. Hence in reading the lives of eminent men who have greatly distinguished themselves, we find their youth passed in self-denials of food, sleep, rest, and recreation. They sat up late, rose early, to the performance of imperative duties, doing by daylight the work of one man, and by night that of another. Said a gentleman, the other day, now a private banker of high integrity, and who started in life without a dollar, "For years I was in my place of business by sunrise, and often did not leave it for fifteen or eighteen hours." Let not then any youth be discouraged if he has to make his own living, or even to support a widowed mother, or sick sister, or unfortunate relative; for this has been the road to eminence of many a proud name. This is the path which printers and teachers have often trod—thorny enough at times, at others so beset with obstacles as to be almost impassable: but the way was cleared, sunshine came, success followed—then the glory and renown.

Twenty clerks in a store; twenty hands in a printing office; twenty apprentices in a shipyard; twenty young men in a village—all want to get on in the world, and expect to do so. One of the clerks will become a partner and make a fortune; one of the compositors will own a newspaper and become an influential citizen; one of the apprentices will become a master builder; one of the young villagers will get a handsome farm and live like a patriarch—but which one is the lucky individual? Lucky! there is no luck about it. The thing is almost as certain as the Rule of Three. The young fellow who will distance his competitors is he who masters his business, who preserves his integrity, who lives cleanly and purely, who devotes his leisure hours to the acquisition of knowledge, who never gets into debt, who gains friends by deserving them, and who saves his spare money. There are some ways to fortune shorter than this old dusty highway—but the staunch men of the community, the men who achieve something really worth having, good fortune and serene old age, all go on in this road.

Men are made each with some triumphant superiority which, through some adaptation of the finger, or the eye, or ear, enriches the community with new interest. We value these feats as certificates of mental power. Jeuffroy could draw a perfect circle with his bare hand; a king of Norway could row around his galleries on the blades of the oars, while the boat was in motion; another gave a public entertainment, where he painted the scenes, cut the statues, invented the enginery, composed the music, wrote the comedy, and built the theater. Sheridan in one day took part in the prosecution of the Hastings, and in the evening in the debate of the House of Commons, and then at night, the two theaters played, one the "Duenna," and the other the "School for Scandal," his pieces. On the Rhine, Dr. Polodores said to Byron, "After all, what is there you can do and I can not?" "Why, since you force me to say," answered Byron, "I think of three things which I can do, and you can not." Being defied to name them, he said, "I can swim across that river, (the Rhine;) I can snuff out that candle with a pistol shot at twelve paces; and I have written a poem of which fourteen thousand copies were sold in one day." I was told in Philadelphia by a person quite knowing as to what he said that Sidney Smith forced the State of Pennsylvania to pay its bonds; he followed that offending commonwealth with his ridicule; nobody could dodge it; his letters were reprinted all over the state, and his ridicule permeates everything until at last no man dare go to the legislature until he was content to

vote to pay the bonds. I saw at Montreal Sir George Simpson, whose boast it is that he has gone round the world by land. Bonaparte did exploits enough for many lives, but here is one long forgotten: "I have displaced the seat of industry in driving it from the sea, and causing sugar to be made from turnips, and soda from salt." Hypocrates, in Greece, knew how to stay the devouring plague which had ravaged Athens. We have seen a woman who could institute hospitals in armies; another who by pure music could melt the souls of a population. We have seen, in America, a woman write a novel, of which a million copies were sold in all languages, which was read to three audiences, in the drawing-room, the nursery, and the kitchen. There is many a man in this country who has built his town; there are inventors who can put their thoughts into brass, iron, stone or wood; and we can build the best ships for freight and swiftness. One makes a wheel that saves ninety per cent. of the waterfall; another makes a reaping machine; another plays chess; another tames horses. Our civilization is made up of a million contributions of facts of this kind of success.

I have read that Napoleon used to say, "Never mind justice and means, so that I succeed." In the same spirit is the French maxim, "Nothing succeeds better than success," and some Americans are too deeply tainted with this insanity about bankruptcies. But nature knows how to convert our evil to good. Nature utilizes all our foibles, utilizes misers, fanatics, showmen, egotists, to accomplish her ends, though we must not think the better for the foible for that. This passion for sudden, superficial, external success is all rude and puerile, just as the worn cannon and execution is used to clear the ground of savages, but always to the damage of the conquerers.

There was a wise man in Italy, Michael Angelo, who writes thus of himself: "The Cardinal St. Giorgio, in whom all my best hopes were placed, having died, I begin to understand that the dreams of this world are but vain phantasies, and that to confide in one's self and become something of worth and value is the best and safest course." Let us take Michael Angelo's rule, "to confide in one's self and be something of worth and value."

Each man has an aptitude born with him to do easily some feat impossible to another. Do your work, respect the excellence of the work and not its acceptableness. This is so much economy, that rightly read, it is the sum of all economy. Do your work. Let the man dare to do that which he can do best, that is the plainest thrift.

Self-trust is the first secret of success. So long as you work at your own take, so long you are successful. Success does not consist in rushing prematurely to showy feats to catch the eye. It is enough that you work in the right direction.

We hear a good deal about "good luck" and "bad luck." If a person has prospered in business, he is said to have had "good luck." If he has failed, he has had "bad luck." If he has been sick, good or bad luck is said to have visited him, accordingly as he got well or died. Or, if he has remained in good health, while others have been attacked by some epidemic disease, he has had the "good luck" to escape that with which others have had the "bad luck" to be seized.

These habitual expressions about "luck," whether good or bad, are the offspring of atheism. They ignore the idea of Divine Providence, which, Christianity teaches us, superintends all the affairs of men.

Good or bad luck is in most cases but a synonym for good or bad judgment. The prudent, the considerate, and the circumspect seldom complain of ill luck.

The secret of one's success or failure in nearly every enterprise is usually contained in answer to the question: How earnest is he? Success is the child of confidence and perseverance. The talent of success is simply doing what you can do well, and doing well whatever you do—without a thought of fame. Fame never comes because it is craved. Success is the best test of capacity. Success is not always a proper criterion for judging a man's character. It is certain that success naturally confirms us in a favorable opinion of ourselves. Success in life consists in the proper and harmonious development of those faculties which God has given us.

Be thrifty that you may have wherewith to be charitable. He that labors and thrives, spins gold.

They who are eminently successful in business, or who achieve greatness, or even notoriety in any pursuit, must expect to make enemies. Whoever becomes distinguished is sure to be a mark for the malicious spite of those who, not deserving success themselves, are galled by the merited triumph of the more worthy. Moreover, the opposition which originates in such despicable motives, is sure to be of the most unscrupulous character; hesitating at no iniquity, descending to the shabbiest littleness. Opposition, if it be honest and manly, is not in itself undesirable. It is the whetstone by which a highly tempered nature is polished and sharpened; and the competitor in life's struggle, who is of the true metal, deprecates not opposi-

tion of such a character, but rather rejoices in it, as a brave warrior exults in a foeman worthy of his steel. It is only injustice or meanness which wounds; and it is this which the successful must meet proportioned in bitterness, oftentimes, to the measure of success which excites it.

In any age, but especially in ours, the faint-hearted must fail. The way to great results is always beset by difficulties that only determined effort can overcome. Oftentimes the difficulties to be surmounted are great in proportion to the magnitude of the end, so that the grandest of human achievements have come of an energy and determination more than earthly. The greatest talents have sometimes lost an occasion worthy of themselves, simply from indecision, while smaller minds have seized the hour, and with resistless will accomplished their purpose. Indecision is a weakness, sometimes a sin. Decision of character can and should be cultivated.

HONOR.

TRUE honor, as defined by Cicero, is the concurrent approbation of good men; those only being fit to give true praise, who are themselves praiseworthy. Anciently the Romans worshipped virtue and honor as gods; they built two temples, which were so seated, that none could enter the temple of honor, without passing through the temple of virtue.

The way to be truly honored, is to be illustriously good. Maximilian, the German emperor, replied to one who desired his letters patent to ennoble him, saying, I am able to make you rich; but virtue must make you noble. Who would not desire the honor that Agesilaus, king of Sparta, had, who was fined by the Sphori for having stolen away all the hearts of the people to himself alone? Of whom it is said, that he ruled his country by obeying it. It is with glory as with beauty: for as a single fine lineament cannot make a fine face, neither can a single good quality render a man accomplished; but a concurrence of many fine features, and good qualities, make true beauty and true honor.

The Athenians raised a noble statue to the memory of Æsop, and placed a slave on a pedestal, that men might know the way to honor was open to all. The man of honor is internal, the person of honor an external; the one a real, the other a fictitious character. A per-

son of honor may be a profane libertine, penurious, proud, may insult his inferiors, and defraud his creditors; but it is impossible for a man of honor to be guilty of any of these.

There is no true glory, no true greatness, without virtue; without which we do but abuse all the good things we have, whether they be great or little, false or real. Riches make us either covetous or prodigal; fine palaces make us despise the poor and poverty; a great number of domestics flatter human pride, which uses them like slaves; valor oftentimes turns brutal and unjust; and a high pedigree makes a man take up with the virtues of his ancestors, without endeavoring to acquire any himself.

Where honor runs parallel with the laws of God and our country, says Addison, it cannot be too much cherished. Says Pope:—

“Honor and shame from no condition rise;
Act well your part; there all the honor lies.”

“Mine honor is my life; both grow in one;
Take honor from me, and my life is undone.”—*Shak.*

H O N E S T Y.

NOTHING more completely baffles one who is full of trick and duplicity himself, than straightforward and simple integrity in another. A knave would rather quarrel with a brother knave than a fool, but he would rather avoid a quarrel with one honest man than with both. He can combat a fool by management and address, and he can conquer a knave by temptations. But the honest man is neither to be bamboozled or bribed.

A man who is rightly honest, looks not to what he might do, but to what he should. He wears always the same countenance; speaks the truth; his cheeks are never stained with the blushes of recantation; nor does his tongue falter to make good a lie, with the secret glosses of double or reserved meaning. An honest man is believed without an oath; for his reputation swears for him. Xenocrates was a man of so much truth and fidelity, that the Athenians gave him alone this privilege, that his evidence should be lawful without swearing. And it is said of Fabricius that a man might as well attempt to turn the sun out of its course, as bring him to do a base or dishonest action.

Sincerity of heart and integrity of life, are the great and indispen-

sable ornaments of human nature. No man is wise or safe, but he that is honest. A firm faith and true honesty are not to be forced by necessity, or corrupted by reward. Honesty is silently commended by the practice of even the most wicked; for their deceit is under its colors.

It is with honesty in one particular as with wealth; those that have the thing care less about the credit of it than those that have it not. What passes as open-faced honesty is often masked malignity. He who saith there is no such thing as an honest man, you may be sure is himself a knave. When any one complains, as Diogenes did, that he has to hunt the street with candles at noon-day to find an honest man, we are apt to think that his nearest neighbor would have quite as much difficulty as himself in making the discovery. If you think there isn't an honest man living, you had better, for appearance sake, put off saying it till you are dead yourself. Honesty is the best policy, but those who do honest things merely because they think it good policy, are not honest. No man has ever been too honest. Cicero believed that nothing is useful that is not honest. He that walketh uprightly, walketh surely; but he that perverteth his ways shall be known. There is an alchemy in a high heart which transmutes other things to its own quality.

The truth of the good old maxim, that "Honesty is the best policy," is upheld by the daily experience of life; uprightness and integrity being found as successful in business as in everything else. As Hugh Miller's worthy uncle used to advise him, "In all your dealings give your neighbor the cast of the baulk,—'good measure, heaped up, and running over,'—and you will not lose by it in the end." An English brewer of beer attributed his success to the liberality with which he used his malt. Going up to the vat and tasting it, he would say, "Still rather poor, my lads; give it another cast of the malt." The brewer put his character into his beer, and it proved generous accordingly, obtaining a reputation in England, India, and the British colonies, which laid the foundation of a large fortune. Integrity of word and deed ought to be the very corner-stone of all business transactions. To the tradesman, the merchant, and manufacturer, it should be what honor is to the soldier, and charity to the Christian. In the humblest calling there will always be found scope for the exercise of this uprightness of character. Hugh Miller speaks of the honest mason with whom he served his apprenticeship, who "*put his conscience into every stone that he laid.*" So the true mechanic will pride himself upon the thoroughness and solidity of his work, and the

high-minded contractor upon the honesty of performance of his contract in every particular. The upright manufacturer will find not only honor and reputation, but substantial success, in the genuineness of the article which he produces, and the merchant in the honesty of what he sells, and that it really is what it seems to be. We may succeed for a time by fraud, by surprise, by violence; but we can succeed permanently only by means directly opposite. It is not alone the courage, the intelligence, the activity, of the merchant and manufacturer which maintain the superiority of their productions and the character of their country; it is far more their wisdom, their economy, and, above all, their probity.

It may be admitted that trade tries character perhaps more severely than any other pursuit in life. It puts to the severest tests honesty, self-denial, justice, and truthfulness; and men of business who pass through such trials unstained, are perhaps worthy of as great honor as soldiers who prove their courage amidst the fire and perils of battle. And, to the credit of multitudes of men engaged in the various departments of trade, we think it must be admitted that on the whole they pass through their trials nobly. If we reflect but for a moment on the vast amount of wealth daily intrusted even to subordinate persons, who themselves probably earn but a bare competency,—the loose cash which is constantly passing through the hands of shopmen, agents, brokers, and clerks in banking houses,—and note how comparatively few are the breaches of trust which occur amidst all this temptation, it will probably be admitted that this steady daily honesty of conduct is most honorable to human nature, if it do not even tempt us to be proud of it. The same trust and confidence reposed by men of business in each other as implied by the system of credit, which is mainly based upon the principle of honor, would be surprising if it were not so much a matter of ordinary practice in business transactions. Dr. Chalmers has well said, that the implicit trust with which merchants are accustomed to confide in distant agents, separated from them perhaps by half the globe,—often consigning vast wealth to men, recommended only by their character, whom perhaps they never saw,—is probably the finest act of homage of one human being to another.

Although common honesty is still happily in the ascendant amongst common people, and the general business community is still sound at heart, putting their honest character into their respective callings,—there are unhappily, as there have been in all times, but too many instances of flagrant dishonesty and fraud, exhibited by the unscrupulous

pulous, the over-speculative, and the intensely selfish, in their haste to be rich. There are tradesmen who adulterate, contractors who "scamp," manufacturers who give us shoddy instead of wool, "dressing" instead of cotton, cast-iron tools instead of steel, needles without eyes, razors made only "to sell," and swindled fabrics in many shapes. But these we must hold to be the exceptional cases of low-minded and grasping men, who, though they may gain wealth which they probably cannot enjoy, will never gain an honest character, nor secure that without which wealth is nothing,—a satisfied conscience. Money earned by falsehood, cheating, and over-reaching, may for a time dazzle the eyes of the unthinking; but the bubbles blown by unscrupulous rogues, when full-blown, usually glitter only to burst. The dishonest, for the most part, come to a sad end even in this world; and though the successful swindles of others may not be found out, and the gains of their roguery may remain with them, it will be as a curse and not as a blessing. To such the words of the Apostle strongly apply: "Your gold and silver is cankered: and the rust of them shall be a witness against you, and shall eat your flesh as it were fire."

It is possible that the scrupulously honest man may not grow rich so fast as the unscrupulous and dishonest one; but the success will be of a truer kind, earned without fraud or injustice. And even though a man should for a time be unsuccessful, still he must be honest; better lose all and save character. For character is itself a fortune; and if the high-principled man will but hold on his way courageously, success will surely come,—nor will the highest reward of all be withheld from him.

PUNCTUALITY.

THERE were four good habits a wise man recommended to be essentially necessary for the management of temporal concerns; and these were punctuality, accuracy, steadiness, and dispatch. Without the first of these, time is wasted; without the second, mistakes the most hurtful to our own credit and interest and that of others may be committed; without the third, nothing can be well done; and without the fourth, opportunities of great advantages are lost, which it is impossible to recall.

A punctual man can always find leisure, a negligent one never.

Appointments once made, become debts. I have no right to throw away your time if I do my own. One of the first habits young persons should form, should be that of doing things at their right time. They should establish a character that will be a pledge that whenever anything is undertaken, it will be completed at the right time. If you make an engagement to meet any one at a certain time, be sure and be at the place exactly at the time appointed. Do not say a few minutes will not make any difference. If you engage to do anything by a certain hour, do not say it will be just as well if it be done half an hour afterward.

A proper consideration of the value of time, will inspire habits of punctuality. Punctuality, said Louis XIV, is the politeness of kings. It is also the duty of gentlemen, and the necessity of men of business. Nothing begets confidence in a man sooner than the practice of this virtue, and nothing shakes confidence sooner than the want of it. He who holds to his appointment and does not keep you waiting for him, shows that he has regard for your time as well as for his own. Thus punctuality is one of the modes by which we testify our personal respect for those whom we are called upon to meet in the business of life. It is also conscientiousness in a measure; for an appointment is a contract, express or implied, and he who does not keep it breaks faith, as well as dishonestly uses other people's time, and thus inevitably loses character. We naturally come to the conclusion that the person who is careless about time, will be careless about business, and that he is not the one to be trusted with the transaction of matters of importance. When Washington's secretary excused himself for the lateness of his attendance, and laid the blame upon his watch, his master quietly said, "Then you must get another watch, or I another secretary."

The unpunctual man is a general disturber of others' peace and serenity. Everybody with whom he has to do is thrown from time to time into a state of fever; he is systematically late; regular only in his irregularity. He conducts his dawdling upon a system; always arrives at his appointment after time; gets to the railway station after the train has started; and posts his letters when the box has closed. Business is thus thrown into confusion, and everybody concerned is put out of temper. It will generally be found that the men who are thus habitually behind time, are as habitually behind success; and the world generally casts them aside to swell the ranks of the grumblers and the railers against fortune. A London publisher, who rose from a very humble position in life, once said of himself, that he "had

lodged with beggars, and had the honor of presentation to royalty," and that he attributed his success in life mainly to three things,—punctuality as to time, self-reliance, and integrity in word and deed.

If you desire to enjoy life, avoid unpunctual people. They impede business and poison pleasure. Make it your own rule, not only to be punctual, but a little beforehand. Such a habit secures a composure, which is essential to happiness. For want of it many people live in a constant fever, and put all about them in a fever too.

It is related of a Mr. Scott, of Exeter, England, who traveled on business till about eighty years of age, and was one of the most celebrated characters in the Kingdom for punctuality by his methodical conduct, joined to uniform diligence, amassing a large fortune that for a long series of years, the proprietors of every inn he frequented in Devon and Cornwall knew the day and the very hour he would arrive. A short time before he died, a gentleman on a journey in Cornwall stopped at a small inn to dine. The waiter presented him with a bill of fare that he did not approve of; but observing a fine duck roasting, "I'll have that," said the traveler. "You can not, sir," said the landlord "it is for Mr. Scott, of Exeter." "I know Mr. Scott very well," rejoined the gentleman; "he's not in your house." "True, sir," said the landlord, "but six months ago, when he was here last, he ordered a duck, to be ready for him this day precisely at two o'clock," and to the astonishment of the traveler, he saw the old gentleman jogging into the inn-yard just about five minutes before the appointed time.

A certain punctual and wealthy landlord, remarkable for his urbanity of manners and willingness to oblige every one who is up to the mark, when pay-day comes, has a large number of tenants, and never varies five minutes from a certain hour on each quarter-day to call in person and receive his due. One day a very good tenant asked a little delay, as he was a little short of funds, and he had a note to meet at the bank, and pleaded in addition that he had always been up to the time before, and only wanted a little extension now. "Oh, certainly," said the generous landlord, taking out his watch; "it is now twelve o'clock; *I'll call around at two!*"

On one occasion, when Washington was sitting for his portrait in Mr. Peale's painting room, he looked at his watch and said: "Mr. Peale, my time for sitting has expired, but if three minutes longer will be of any importance to you, I will remain, and make up the time by hastening my walk up to the State House, (where Congress was in session.) I know exactly how long it will take to walk there,

and it will not do for me, as President, to be absent at the hour of meeting."

Mrs. Washington was as remarkable for punctuality as her illustrious husband. At one time, during the General's absence, he wrote to her to get Mr. Peale to paint her portrait in miniature, and to send it to him. Mrs. Washington wrote a note to the artist, saying that her presence at home was indispensable when the General was away, and it would not be convenient for her to attend at his painting room. She requested him, therefore, to come to her house for the sittings and offered to accommodate herself to any hour when it would suit him to be away from his studio. In reply, Mr. Peale appointed seven o'clock in the morning. When he left his home to keep the engagement for the first sitting, it occurred to him that the lady might not be quite ready to see him at so early an hour. He walked on more slowly than usual. Mrs. Washington met him with the observation, "Mr. Peale, I have been in the kitchen to give my orders for the day; have read the newspaper, and heard my niece take her lesson on the harp, and yet I have waited on you twenty minutes." The gentleman, of course, felt exceedingly mortified, and remarked that if his engagement had been with General Washington, he should have felt the importance of being punctual to the minute, but he thought it necessary to give a lady a little more time. "Sir," replied Mrs. Washington, "I am as punctual as the General." It may be imagined that Mr. Peale took care to be at the house the next day at the time appointed.

Among mechanics, punctuality is a great desideratum. Show us a mechanic who will get our work done by the time specified, and we will cherish him as the apple of our eye. But to the mechanic who makes us call twice, (fire and sickness excepted,) we bid farewell—a long farewell—he is not the man for our money. The mechanic gains nothing by false promises except a bad name. In order to grasp at all the work in a neighborhood, many a mechanic will promise when he knows it is not in his power to *perform*. What is such a man but a liar? To say nothing of the vice of lying, than which there is nothing more low and contemptible, the mechanic, in the end, gets far less work by false promises than he would by a strict adherence to the truth. *Punctuality* in a mechanic is the soul of business, the foundation of prosperity, and the security of a good reputation.

Appoint a time for everything, and do everything in its time.

An incident is told of Sir William Napier, who was one day taking a long country walk near Freshford, when he met a little girl about

five years old, sobbing over a broken bowl; she had dropped and broken it in bringing it back from the field to which she had taken her father's dinner in it, and she said she would be beaten on her return home for having broken it; then, with a sudden gleam of hope, she innocently looked up into his face and said, "But yee can mend it, can't ee?" My father explained that he could not mend the bowl, but the trouble he could, by the gift of a sixpence to buy another. However, on opening his purse it was empty of silver, and he had to make amends by promising to meet his little friend in the same spot at the same hour the next day, and to bring the sixpence with him, bidding her meanwhile tell her mother she had seen a gentleman who would bring her the money for the bowl next day. The child, entirely trusting him, went on her way comforted. On his return home, he found an invitation awaiting him to dine in Bath the following evening, to meet some one whom he specially wished to see. He hesitated for some little time trying to calculate the possibility of giving the meeting to his little friend of the broken bowl and of still being in time for the dinner-party in Bath; but finding this could not be, he wrote to decline accepting the invitation on the plea of a "pre-engagement," saying to us, "I cannot disappoint her, she trusted me so implicitly."

FORTITUDE.

It is good for man that he bear the yoke in his youth. Oaks are made hard by strong discipline. As a gladiator trained the body, so must we train the mind to self-sacrifice, "to endure all things," to meet and overcome difficulty and danger. We must take the rough and thorny roads as well as the smooth and pleasant; and a portion at least of our daily duty must be hard and disagreeable; for the mind cannot be kept strong and healthy in perpetual sunshine only, and the most dangerous of all states is, that of constantly recurring pleasure, ease, and prosperity.

It seems as if man were like the earth. It cannot bask forever in sunshine. The snows of winter and frosts must come and work in the ground and mellow it to make them fruitful. A man upon whom continuous sunshine falls is like the earth in August. He becomes parched and dry, and hard and close-grained. To some men the winter and spring come when they are young; others are born in sum-

mer and are only made fit to die by a winter of sorrow coming to them when they are middle-aged or old.

Fortitude has its extremes as well as the rest of the virtues, and ought, like them, to be always attended by prudence.

The gallant, the accomplished, and more than all that, the good Major Popham, who departed this life not long ago on the verge of a hundred, the last surviving member of the family of Washington, of whom he was an aid-de-camp, once remarked thus: "People talk," said he, "of the hardships of the revolutionary war. Sir, there were no hardships in it. There was an excitement, an enthusiasm attending on the cause in which we were engaged, which kept up our spirits, and actually made toil and privation a pleasure." "But, Major, you had hard work, and hard fare, and hard fighting," was the reply. "That's all true," he again said, "but no *hardship*. *Studio fallente labore*, you know Horace says—the interest beguiled the toil. No years of my life fled away more quickly and pleasantly."

What we have seen of men and of the world convinces us that one of the first conditions of enjoying life is to *have something to do*, something great enough to rouse the mind and noble enough to satisfy the heart, and then *to give our mind and heart*, our thought and toil and affections to it, to labor for it, in the fine words of Robert Hall, "with an ardor bordering on enthusiasm," or, as a yet greater sage expresses it, to "*do it with all our might*."

Skillful mariners get their art in tempestuous storms; any novice can sail on a smooth sea.

INDEPENDENCE.

THOUGH no man is perfectly independent of all others, yet be above the world, and act from your own sense of right and wrong. Let your judgment control your conduct, and your conscience control your judgment always. Be independent.

PRUDENCE.

THE richest endowments of the mind, are temperance, prudence, and fortitude. Prudence is a universal virtue, which enters into the

composition of all the rest; and where she is not, fortitude loses its name and nature. At every action and enterprise, ask yourself this question: What will the consequence of this be to me? Am I not likely to repent of it? I shall be dead in a little time, and then all is over with me. Whatever thou takest in hand, remember the end, and thou shalt never do amiss. Think before you speak, and consider before you promise. Take time to deliberate and advise; but lose no time in executing your resolutions. Do nothing to-day that you will repent of to-morrow. In the morning, think of what you have to do; and at night, ask yourself what you have done. Seek not out the things that are too hard for thee. Strive not in a matter that concerneth thee not.

As man is a being very sparingly furnished with the power of prescience, he can provide for the future only by considering the past; and as futurity is all in which he has any real interest, he ought very diligently to use the only means by which he can be enabled to enjoy it, and frequently to revolve the experiments which he has hitherto made upon life, that he may gain wisdom from his mistakes, and caution from his miscarriages. When a prudent man, says Lord Chesterfield, gets into that predicament that he must ask himself more than once what he shall do, he will answer, 'Nothing.' Where reason points out no good way, or at least none less bad than the other, he will stop short and wait for light. A little busy mind runs on at all events—must be doing, and like a blind horse, fears no danger because he sees none. Look before you leap. Dangers avoided inspire confidence in Providence. Be ye wise as serpents, yet harmless as doves.

Judgment is the throne of prudence, and silence is its sanctuary. Nothing goes wrong where prudence is the guide. Your wit makes clear things doubtful; but it is your prudence that makes doubtful things clear. It is a sign of great prudence to be willing to receive instruction; the most intelligent persons sometimes stand in need of it. Had I been in the worldly sense of the word even a prudent man, said Lord Byron, I should not be where I am now. The man that is prudent and energetic will succeed. Though fortune seems to be a universal mistress, yet prudence is her's. When we are guided by prudence, we are surrounded by all other divinities.

The most provident have commonly more to spare than men of great fortunes. Prudence saves what passion wastes. Never spend money before you have it. Do not all that you can do; spend not all that you have; believe not all that you hear; and tell not all that

you know. It is a maxim of prudence, to leave things before they leave us. He should consider often, who can choose but once. Sell not virtue to purchase wealth.

Charity obliges us not to mistrust a man; prudence not to trust him before we know him.

SAVING.

It is not what people eat, but what they digest, that makes them strong. It is not what they gain, but what they save, that makes them rich. It is not what they read, but what they remember, that makes them learned. It is not what they profess, but what they practice, that makes them righteous. These are very plain and important truths, too little heeded by gluttons, spendthrifts, book-worms, and hypocrites. It is not the money that a man earns, but the money that he saves, which enriches him. Anybody may acquire wealth who will remember to act on this principle. The facility with which money can be gained by industry, in this country, is very great when compared with the facilities for gaining it, generally abroad; but we are an extravagant people, and we expend our earnings with a commensurate prodigality. Those who do not, but practice self-restraint and a careful economy invariably grow rich. They cannot well avoid it. Money makes money. The first thousand dollars soon creates more thousands; and if you will only compute it, you would be surprised to discover how soon you have expended that thousand upon purchases by no means indispensable to either your comfort or your happiness. "It's what thee'll spend, my son," said a sage old Quaker, "not what thee'll make, which will decide whether thee is to be rich or no." The advice was right, for it was but Franklin's in another shape. "Take care of the pennies, and the pounds will take care of themselves." But it cannot be too often repeated. Men are continually indulging in small expenses, saying to themselves that it is only a trifle, yet forgetting that in the aggregate it is serious, that even the sea-shore is made up of petty grains of sand. Ten cents a day is even thirty-six dollars and a half a year, and that is the interest of a capital of six hundred dollars. The man that saves ten cents a day only, is so much richer than if he does not, as if he owned a life estate in a house worth six hundred dollars. Every sixteen years, ten cents a day becomes six hundred dollars; and if invested quar-

terly does not take half the time. But ten cents a day is child's play, some will exclaim.

It takes more of a man, requires more mind, more moral, to save money than to make it; the idea being expressed, although in not very elegant phrase, "Any fool or knave can make money, but it requires a wise man to keep it." A penny saved is tuppence gained. A man is a man, in proportion to the amount of self-denial he can exercise over himself, in proportion to his moral courage to deny himself as to his appetites and gratifications. Spendthrifts have none of these high qualities, consequently, the world over, they are contemptuously set aside with the expression: "Oh! he's no account." Where there is most poverty, there is most crime, destitution, disease, and premature death.

The way to keep money is to earn it fairly and honestly. Money so obtained is pretty certain to abide with its possessor. But money that is inherited, or that in any way comes without a just and fair equivalent, is almost certain to go as it came. The young man who begins by saving a few shillings, and thriftily increases his store—every coin being a representative of a good solid work, honestly and manfully done—stands a better chance to spend the last half of his life in affluence and ease than he who, in his haste to become rich, obtains money by dashing speculations or the devious means which abound in the foggy regions lying between fair dealing and actual fraud. Among the wisest and most thrifty men of wealth, the current proverb is, "Money comes as it goes." Let the young man make a note of this and see that his money comes fairly, that it may long abide with him.

The saving of money, like the getting, should be intelligent of a purpose beyond. It should not be saving for saving's sake, but for the sake of some worthy object to be accomplished by the money saved. A shoemaker being asked how he contrived to give so much, replied, that it was easily done by obeying St. Paul's precept in 1 Cor. xvi, 2, "Upon the first day of the week, let every one of you lay by him in store, as God hath prospered him." I earn, said he, one day with another, about a dollar a day; and I can, without inconvenience to myself or family, lay by five cents of this sum for charitable purposes; the amount is thirty cents a week. My wife takes in sewing and washing, and earns about two dollars a week, and she lays by something like ten cents of that. My children each of them earn a shilling or two, and they are glad to contribute a penny; so that altogether we lay by us in store forty cents a week;

and if we have been unusually prospered, we contribute something more. The weekly amount is deposited every Sunday morning in a box kept for that purpose, and reserved for future use. Thus, by these small earnings, we have learned that it is more blessed to give than receive. The yearly amount saved in this way is about twenty-five dollars ; and I distribute this among the various benevolent societies, according to the best of my judgment.

There is now an old man in an almshouse, in Bristol, England, who states that for sixty years he spent sixpence a day in drink, but was never intoxicated. A gentleman who heard this statement astonished the old man by showing him, in figures, that his sixpence a day, if invested at five per cent., compound interest, would have amounted by this time to over \$16,000. A shilling a day saved amounts to an estate in the course of a life. A son of Caleb Smith, of Amherst, Massachusetts, about ten years of age, has thirty dollars in silver that he inherited from his grandfather, who, seventy years ago, presented it to the father of the boy on condition that it should be kept in the family as an heir-loom. Had it been placed at interest it would now amount to about \$2,000.

Economy is especially important in the outset of life, until the foundations of an estate are laid. Many men are poor all their days, because, when their necessary expenses were small, they did not seize the opportunity to save a small capital, which would have changed their fortunes for the whole of their lives. He who buys too many superfluities may be obliged to sell his necessities. It is better to know what you don't want, than not to know what you do want.

The world is full of people who can't imagine why they don't prosper like their neighbors, when the real obstacle is not in banks or tariffs, in bad public policy or hard times, but in their own extravagance and heedless ostentation. The young clerk marries and takes a house, which he proceeds to furnish twice as expensively as he can afford, and then his wife, instead of taking hold to earn a livelihood by doing her own work, must have a hired servant to help spend his limited earnings. Ten years afterwards you will find him struggling on under a load of debts and children, wondering why luck was always against him, while his friends regret his unhappy destitution and financial inability. Had they from the first been frank and honest, he need not have been so unlucky.

The single man "hired out" in the country at ten or fifteen dollars per month, who contrives to dissolve his year's earnings in frolics and fine clothes ; the clerk who has five hundred a year, and melts

fifty of it into liquor and cigars, are paralleled by the young merchant who fills a house with costly furniture, gives dinners, and drives a fast horse on the strength of the profits he expects to realize when his goods are sold and his notes all paid. Let a man have a genius for spending, and whether his income be a dollar a day or a dollar a minute, it is equally certain to prove inadequate. The man who, being single, does not save money on six dollars a week, will not be apt to on sixty; and he who does not lay up something in his first year of independent exertion, will be pretty apt to wear a poor man's hair into his grave.

The art of money-saving is an important part of the art of money-getting. Without frugality no one can become rich; with it, few would be poor. Those who consume as fast as they produce, are on the road to ruin. As most of the poverty we meet with grows out of idleness and extravagance, so most large fortunes have been the result of habitual industry and frugality. The practice of economy is as necessary in the expenditure of time as of money. They say that if we "take care of the pence, the pounds will take care of themselves." So, if we take care of the minutes, the days will take care of themselves.

Beware of little expenses, for saving is the bee-line road to wealth. The first effort to save is the most difficult; only begin and it will soon become easy. Forget not that the loftiest structures were raised stone by stone.

If every laborer would make a rule to lay by something from his earnings every week, even though it is but a dime, it would be a great step gained toward independence. There are few, if any, in the common walks of life who cannot do this, and the first five dollars laid by in the savings bank, is a good foundation for a fortune. It will make you more careful of little useless expenditures, and give you great relief and satisfaction in view of possible reverses, or long-continued sickness. Every one who can, should lay aside for a rainy day. A lady who was in the habit of cutting out a great deal of work for a large establishment, found a great many bits of cloth accumulating, and her first impulse was to burn them; but she thought better of it, and saved them up until a convenient opportunity occurred for sending them to a paper mill. A rustling five-dollar bill was sent back to her, much to her surprise and pleasure. She resolved to put it into the savings bank, and add to it all her rag-money. After a time a very good opportunity occurred to buy a gold watch, which she desired to improve. She looked over her bank funds, and found that

she had sufficient to purchase it. So her rag-bag literally brought her a gold watch. The little fund kept steadily growing, and now the habit of saving had become formed, and she was able by good management to add a few dollars aside from the rag-money, until at length, with the added interest and all, it amounted to twenty-five hundred dollars. "I hardly know how it has accumulated," said the lady. "A few cuttings laid aside when I cut out my work—a few dollars carried to the bank when I went to the city—a little interest added on from time to time—and it has grown up almost without thought or care on my part." There is a wonderful power in these *littles*. Just try it in little savings, if you would be well convinced of it.

It depends much more on our savings than on our income, whether we shall become prosperous or whether our lives shall be constantly harrassed by want and its attendant miseries.

John Wesley, in his powerful sermon on the use of money, lays down these three rules—Make all you can; save all you can; give all you can. To make without saving, is useless and absurd. To save without giving, is covetousness and idolatry. To make and then save is wise. To save and then give is Christian.

He that is taught to live upon little, owes more to his father's wisdom, than he that has a great deal left him, does to his father's care.

It is easier to increase our wants, be it ever so much, than to reduce them, be it ever so little. To find the sheriff's office, every time you earn five dollars spend ten. There's two ways of doing it, said Pat to himself, as he stood musing and waiting for a job. If I save me two thousand dollars, I must lay up two hundred dollars a year for twenty years, or I can put away twenty dollars a year for two hundred years—now which shall I do?

Frugality is good, if liberality be joined with it. Frugality is a fair fortune, and industry a good estate. If there is no fuel, we can have no fire. Waste not, want not. Ants provide against winter. A penny saved is as good as two pennies earned. Gather up the fragments that nothing be lost.

Who is the worse,—he who never spends, or he who never saves? A fool and his money are soon parted. He has a good income who has but few occasions for spending; not he who has great rents and great vents.

A man that saves the fragments of time, will accomplish much in the course of his life.

John Jacob Astor used to say, that when a man who wishes to be rich, has saved ten thousand dollars, he has won half the battle. The laboring classes of the state of New York, have at this moment over \$80,000,000 to their credit in the savings banks. In Massachusetts, one in five of the whole population of the state has a deposit in the savings banks, the total amount of which, as appears by the last annual returns to the secretary of the commonwealth, is \$62,557,655.

It is not the money earned that makes a man wealthy—it is what he saves from his earnings. Self-gratification in dress, or indulgence in appetite, or more company than his purse can well entertain, are equally pernicious. The first adds vanity to extravagance, the second fastens a doctor's bill to a long butcher's account, and the latter brings intemperance, the worst of all evils, in its train.

ENERGY.

It was Goethe that said this beautiful thing: The longer I live, the more certain I am that the great difference between men, the great and insignificant, is energy, invincible determination—an honest purpose once fixed, and then victory. That quality will do anything that can be done in the world, and no circumstance, no opportunity, will make a two-legged creature a man without it.

I have lived long enough to know, says Adam Clarke, that the greatest secret of human happiness is this: Never suffer your energies to stagnate. There is no genius of life, like the genius of energy and industry. All the traditions current among very young men that certain great characters have wrought their greatness, by an inspiration, as it were, grows out of a sad mistake. There are no rivals so formidable as those earnest, determined minds, which reckon the value of every hour, and which achieve eminence by persistent application.

The author of that most excellent book, "Self-Help," says, that the difference between one boy and another consists not so much in talent as in energy. Provided the dunce has persistency and application, he will inevitably head the cleverer fellow without these qualities. Slow but sure, wins the race. It is perseverance that explains how the position of boys at school is often reversed in real life; and it is curious to note how some who were then so clever have since become so common-place; whilst others, dull boys, of whom nothing

was expected, slow in their faculties but sure in their pace, have assumed the position of leaders of men. And he adds, that, when a boy, he stood in the same class with one of the greatest of dunces. One teacher after another had tried his skill upon him and failed. Corporeal punishment, the fool's cap, coaxing, and earnest entreaty, proved alike fruitless. Sometimes the experiment was tried of putting him at the top of his class, and it was curious to note the rapidity with which he gravitated to the inevitable bottom, like a lump of lead passing through quicksilver. The youth was given up by many teachers as an incorrigible dunce,—one of them pronouncing him to be “a stupendous booby.” Yet, slow though he was, this dunce had a dull energy and a sort of beefy tenacity of purpose, which grew with his muscles and his manhood; and, strange to say, when he at length came to take part in the practical business of life, he was found heading most of his school companions, and eventually left the greater number of them far behind. The tortoise in the right road will beat a racer in the wrong. It matters not though a youth be slow, if he be but diligent. Quickness of parts may even prove a defect, inasmuch as the boy who learns readily will often forget quite as readily; and also because he finds no need of cultivating that quality of application and perseverance which the slower youth is compelled to exercise, and which proves so valuable an element in the formation of every character. Davy said, “What I am, I have made myself;” and the same holds true universally. The highest culture is not obtained from teachers when at school or college, so much as by our own diligent self-education when we have become men. Parents need not be in too great haste to see their children's talents forced into bloom. Let them watch and wait patiently, letting good example and quiet training do their work, and leave the rest to Providence. Let them see to it that the youth is provided, by free exercise of his bodily powers, with a full stock of physical health; set him fairly on the road of self-culture; carefully train his habits of application and perseverance; and as he grows older, if the right stuff be in him, he will be enabled vigorously and effectively to cultivate himself.

The proverb says, He who has heart has everything; and who doth not burn doth not inflame. It is astonishing how much may be accomplished in self-culture by the energetic and the persevering, who are careful to avail themselves of opportunities, and use up the fragments of spare time which the idle permit to run to waste. In study, as in business, energy is the great thing. We must not only strike the iron while it is hot, but strike it till it is made hot.

Give us not men like weathercocks that change with every wind, but men like mountains, who change the winds themselves. There is always room for a man of force, and he makes room for many. You can not dream yourself into a character; you must hammer and forge yourself one. Therefore don't live in hope with your arms folded; fortune smiles on those who roll up their sleeves, and put their shoulders to the wheel. "I can't!—it is impossible!" said a foiled lieutenant to Alexander. "Begone!" shouted the conquering Macedonian in reply—"there is nothing impossible to him who will try;" and to make good his words, the haughty warrior not yet come to weep that there were no more worlds to subdue, charged with a phalanx the rock-crested fortress that had defied his timid subaltern, and the foe were swept down as with the besom of destruction.

The greatest glory is not in never falling, but in rising every time we fall.

There is a famous speech recorded of an old Norseman, thoroughly characteristic of the Teuton: "I believe neither in idols nor demons," said he, "I put my sole trust in my own strength of body and soul." The ancient crest of a pickax, with the motto of "Either I will find a way or make one," was an expression of the same sturdy independence and practical materialism, which to this day distinguishes the descendants of the Northmen. Indeed, nothing could be more characteristic of the Scandinavian mythology than that it had a god with a hammer. A man's character is seen in small matters; and from even so slight a test as the mode in which a man wields a hammer, his energy may in some measure be inferred. Thus, an eminent Frenchman hit off in a single phrase the characteristic quality of the inhabitants of a particular district, in which a friend of his proposed to settle and buy land. "Beware," said he, "of making a purchase there; I know the men of that department; the pupils who come from it to our veterinary school at Paris, *do not strike hard upon the anvil*; they want energy; and you will not get a satisfactory return on any capital you may invest there." A fine and just appreciation of character, indicating the accurate and thoughtful observer; and strikingly illustrative of the fact that it is the energy of the individual men that gives strength to a state, and confers a value even upon the very soil which they cultivate.

The cultivation of this quality is of the greatest importance; resolute determination in the pursuit of worthy objects being the foundation of all true greatness of character. Energy enables a man to force his way through irksome drudgery and dry details, and carries

him onward and upward in every station in life. It accomplishes more than genius, with not one-half the disappointment and peril. It is not even eminent talent that is required to ensure success in any pursuit or purpose,—not merely the power to achieve, but the will to labor, to labor energetically and perseveringly. Hence energy of will may be defined to be the very central power of character in a man,—in a word, it is the Man himself. It gives impulse to his every action, and soul to every effort. True hope is based on it,—and it is hope that gives the real perfume to life. “Wo unto him that is faint-hearted,” says the son of Sirach. There is, indeed, no blessing equal to the possession of a stout heart. Even if a man fails in his efforts, it will be a great satisfaction to him to enjoy the consciousness of having done his best. In humble life nothing can be more cheering and beautiful than to see a man combatting suffering by patience, triumphing in his integrity, and who, when his feet are bleeding and his limbs failing him, still walks upon his courage.

Mere wishes and desires but engender a sort of green-sickness in young minds, unless they are promptly embodied in act and deed. The good purpose once formed must be carried out with alacrity, and without swerving. In many walks of life drudgery and toil must be cheerfully endured as the necessary discipline of life. Hugh Miller says, the only school in which he was properly taught was “that world-wide school in which toil and hardship are the severe but noble teachers.” He who allows his application to falter, or shirks his work on frivolous pretexts, is on the sure road to ultimate failure. Let any task be undertaken as a thing not possible to be evaded, and it will soon come to be performed with alacrity and cheerfulness. The habit of strenuous, continued labor will become comparatively easy in time, like every other habit. Thus even men with the commonest brains and the most slender powers will accomplish much, if they will but apply themselves wholly and indefatigably at one thing at a time. Fowel Buxton placed his confidence in ordinary means and extraordinary application; realizing the Scriptural injunction, “Whatsoever thy hand findeth to do, do it with all thy might,” and he himself attributed his own remarkable success in life to his practice of constantly “being a whole man to one thing at a time.”

Energy usually displays itself in promptitude and decision. When Ledyard, the English traveler, was asked by the African Association when he would be ready to set out for Africa, he promptly answered, “To-morrow morning.” “Every moment lost,” said Napoleon, “gives opportunity for misfortune;” and he used to say that he beat the

Austrians, because they never knew the value of time ; while they dawdled he overthrew them.

It is astonishing how much an energetic man of business can accomplish by methodical working, and by the careful economy of his time. It would even appear as if the more business he had the more leisure he had for other affairs.

There are hundreds that want energy for one that wants ambition.

ACTION.

MAN was designed for action. Nature has so constituted him, that both body and mind require daily exercise to develope their powers. The soul is always busy ; and if it be not exercised about serious affairs, it will spend its activity upon trifles. Action is the great law ; it is by steady, strong, continuous action that all great works are accomplished. Push is the Shibboleth of our age. If you do not move with the enterprising crowd, it will sweep over you. The day for waiting upon Providence in business matters is past. Providence will not help any man that cannot help himself. Tax all your energies ; use every new success as a stepping-stone to another triumph ; wrestle resolutely with every difficulty ; and be sure that the Great Artificer, who created and keeps in motion all the forces of the universe, will smile propitiously on your undertakings. Men who have half a dozen irons in the fire are not the ones to go crazy. It is the man of voluntary or compelled leisure who mopes, and pines, and thinks himself into the madhouse or the grave. Motion is all nature's law. Action is man's salvation, physical and mental. And yet, nine out of ten are wistfully looking forward to the coveted hour when they shall have leisure to do nothing, or something only if they feel like it—the siren that has lured to death many a “successful” man. He only is truly wise who lays himself out to work till life's latest hour, and that is the man who will live the longest, and live to most purpose.

It was a maxim of Cæsar, that we ought to reckon we have done nothing, so long as anything remains to be done. They pass best over the world, said Queen Elizabeth, who trip over it quickly, for it is but a bog—if we stop we sink. Says Patrick Henry, The battle, sir, is not to the strong alone ; it is to the vigilant, the active, the

brave. Carlyle says, Cast forth thy act, thy word, into the ever-living, ever-working universe; it is a seed-grain that cannot die.

Work while you work, and play while you play. Constant motion is a great law of nature, nothing being stationary. A man can move the hugest mountains to or from himself by the simple lever of his two legs.

In all emergencies men of prompt action, rather than of curious speculation, are demanded. We have heard of men of science who, when a house was on fire, would stand calmly before it, arguing whether the better way to extinguish the flames was by a siphon or by capillary attraction.

We never knew a smart, active, honest, industrious boy, who did not turn out an energetic, enterprising, and wealthy man. Better wear out than rust out. The most hours do not always signify the most work.

Mankind are not governed by those that know the most. It is not what men know, but what they do, that governs their place in the world.

Wait not for difficulties to cease; glory lies in overcoming them. The human race is divided into two classes, those who go ahead and do something, and those who sit still and ask, "Why wasn't it done the other way?" We have an excellent example of activity and its rewards in the career of General Sheridan. In the beginning of the month of September last, he was simply a captain in the 13th infantry. Twenty days later he became a brigadier, and in less than two months' time, a major-general in the regular service.

EMPLOYMENT.

WHEN the former part of our life has been nothing but vanity, the latter end of it can be nothing but vexation. In short, we must be miserable without some employment to fix, or some amusement to dissipate, our thoughts: the latter we cannot command in all places, nor relish at all times; and therefore there is an absolute necessity for the former.

A life of full and constant employment is the only safe and happy

one. If we suffer the mind and body to be unemployed, our enjoyments, as well as our labors, will be terminated. One of the minor uses of steady employment is, that it keeps one out of mischief, for truly an idle brain is the devil's workshop, and a lazy man the devil's bolster. To be occupied is to be possessed as by a tenant, whereas to be idle is to be empty; and when the doors of the imagination are opened, temptation finds a ready access, and evil thoughts come trooping in. It is observed at sea that men are never so much disposed to grumble and mutiny as when least employed. Hence an old captain, when there was nothing else to do, would issue the order to "scour the anchor."

That great divine, Jeremy Taylor, says: Avoid idleness and fill up all the spaces of thy time with severe and useful employment; for lust easily creeps in at those emptinesses where the soul is unemployed, and the body is at ease; for no easy, healthful, idle person was ever chaste if he could be tempted; but of all employments bodily labor is the most useful, and of the greatest benefit for driving away the devil.

If your hand cannot be usefully employed, attend to the cultivation of your mind. To be employed, said the poet, Gray, is to be happy. It is better to wear out than to rust out, said Bishop Cumberland. Have we not all eternity to rest in? exclaimed Arnauld.

The man who is obliged to be constantly employed to earn the necessities of life and support his family, knows not the unhappiness he prays for when he desires wealth and idleness. To be constantly busy is to be always happy. Persons who have suddenly acquired wealth, broken up their active pursuits, and began to live at their ease, waste away, and die in a very short time. Thousands would have been blessings to the world, and added to the common stock of happiness, if they had been content to remain in a humble sphere, and earned every mouthful of food that nourished their bodies. But no; fashion and wealth took possession of them, and they were completely ruined. They ran away from peace and pleasure, and embraced a lingering death. Ye who are sighing for the pomp and splendor of life, beware! Ye know not what ye wish.

OCCUPATION.

It is an imperative law of nature that in order to be happy we must have some occupation. The mind is so constituted that it requires some object on which its powers may be exercised, and without which it preys upon itself and becomes miserable. A person accustomed to a life of study longs for ease and retirement; and when he has accomplished this purpose he finds himself wretched. We are acquainted with persons whose early lives were passed in active business pursuits, and who, at the age of forty, having acquired a competence, have retired from business with the intention of passing the remainder of their days in leisure. For a while everything seemed pleasant, and they flattered themselves that they could now enjoy life and be happy. But they had deceived themselves; their minds soon became restless, and there was a vast amount of time which they could not occupy, and they have said that their happiest days were passed in business. The pleasure of relaxation can be known only to those who have regular and interesting occupation, and on this account continued relaxation becomes a weariness, and the mind becomes tired of being inactive, and on this ground we maintain that the greatest degree of real happiness and enjoyment is not realized by the luxurious men of wealth, nor by the listless votary of fashion, but by the middle classes of society who, along with the comforts of life, have constant occupation, which in itself proves one of their many sources of happiness. From these facts we draw the following conclusions: That in order to be happy the mind must have some employment; but we would observe that it is not necessary for any person to make their occupation the sole end of their existence, and pursue it with such energy as to shorten their lives; but we believe that occupation, with proper seasons for relaxation, is conducive to and actually necessary for the happiness and welfare of every human being, and without which no one can enjoy life.

There is no discredit, but honor, in every right walk of industry, whether it be in tilling the ground, making tools, weaving fabrics, or selling the products behind a counter. A youth may handle a yardstick, or measure a piece of ribbon; and there will be no discredit in doing so, unless he allows his mind to have no higher range than the stick and ribbon; to be as short as the one, and as narrow as the other. "Let not those blush who *have* but those who *have not* a lawful calling." "Sweet is the destiny of all trades, whether of the

brow or of the mind." Men who have raised themselves from an humble calling, need not be ashamed, but rather ought to be proud of the difficulties which they have surmounted. The laborer on his feet stands higher than the nobleman on his knees. A former president of the United States, when asked by a foreigner what was his coat of arms, remembering the occupation of his youth, proudly replied, "A pair of shirt sleeves." It is said that a certain English lord used to point out to his son with pride the shop in which his father had shaved for a penny. A French doctor once taunted a certain bishop, who had been a tallow chandler in his youth, with the meanness of his origin, to which the bishop replied, "If you had been born in the same condition that I was, you would still have been but a maker of candles." Some small spirits, ashamed of their origin, are always striving to conceal it, and by the very efforts they make to do so, betray themselves. It is told of an English dyer, who having worthily gained his money by honest chimney-sweeping, and feeling ashamed of chimneys, stupidly built his house without one, sending all the smoke into the shaft of his dye-works. Another very intelligent master chimney-sweeper in London affords a good illustration of the force of diligence and well-doing. In early boyhood he was kidnapped for a sweep; the condition of climbing-boys at the time being one almost of slavery. The boy however had energy of body and mind, and survived the privations of his unfortunate class. At eighteen years of age he commenced business as a sweep on his own account. When employment was slack in his trade he sought and found it in others; in summer and harvest time he worked at farm labor, always bringing home a little store of savings. But he did not neglect his mind; above all, he did not forget the hardships endured by the poor little climbing-boys; all of which he had himself passed through. He therefore devoted his leisure,—snatched from a busy life,—to write a treatise on the subject, which he printed and distributed amongst influential persons. By his frugality, industry, and application to business, he eventually realized a large fortune, at the same time promoting the comfort of his boys and workmen in a manner altogether unknown and unusual at the time. On being asked how he had succeeded in his business, and accumulated so large a fortune, he answered, "By never having an idle hour or an idle guinea." This was his whole secret. It is not the place which makes the person honorable, but the person makes the place so.

A useless calling is disgraceful; one that injures mankind—infamous. No profession confers honor. No honest work degrades. It

is excellence in one's vocation, and not the vocation itself, that confers distinction. Let us hear no more of "humble occupation." No man will excel in his profession if he thinks himself above it. One should not undertake what he cannot perform. Every man finds in himself, either from nature or education, (for they are hard to distinguish,) a peculiar bent and disposition to some particular character. Let him follow and cultivate that vocation, he will succeed in it. Whatever situation in life you ever wish or propose for yourself, acquire a clear and lucid idea of the inconveniences attending it. It is only those that have done nothing who fancy they can do everything. It is so ungenial to the human mind to do nothing, that, if a good occupation be not provided, men will occupy themselves perilously, as in gaming and drinking. He that hath a trade, says Franklin, hath an estate; and he that hath a calling, hath an office of profit and honor.

Down to the minutest division of human occupation it will be found that the men whose pursuits bring them in contact with inanimate nature, enjoy their avocations much more than those who are conversant with humanity and all modifications of the social and moral system. Champfort observes that the writers on physics, natural history, physiology, chemistry, have been generally men of mild, even, and happy temperament: while, on the contrary, the writers on politics, legislation, and even morals, commonly exhibited a melancholy and fretful spirit. Nothing more simple; the former studies nature, the other society. One class contemplates the work of the great Being, the other fixes its observation upon the work of man—the results must be different. The nymphs of Calypso, as they caressed and fondled the infant Cupid, became unconsciously penetrated with his flame, and if the power of love be thus subtle, that of hatred is unfortunately not less pervading. We cannot handle human passions, even to play with them, without imbibing some portion of their acrimony, any more than we can gather flowers amid nettles without being stung. Into everything human a spirit of party becomes insinuated, and self-love is perpetually forcing us to taste of its bitterness; but there is no rivalry with nature; our pride does not revolt at her superiority, nay, we find a pure and holy calm in contemplating her majesty, before which we bow down with mingled feelings of delight and reverence. Contrast this with the effects produced upon us by human grandeur and elevation. Hence the charm of solitude; it places us in communion with things, whereas society fixes our regards upon man.

INTEGRITY.

INTEGRITY is the foundation of all that is high in character among mankind; other qualities may add to its splendor, but if this essential requisite be wanting all their lustre fades. Our integrity is never worth so much to us as when we have lost everything to keep it. Integrity without knowledge is weak; knowledge without integrity is dangerous and dreadful. Integrity, however rough, is better than smooth dissimulation.

Foremost in the list of requisites for the acquirement of wealth, are honesty and strict integrity in every transaction of life. Let a man have the reputation of being fair and upright in his dealings, and he will possess the confidence of all who know him. Without these qualities, every other merit will prove unavailing. Ask concerning a man, "Is he active and capable?" Yes. "Industrious, temperate, and regular in his habits?" O, yes. "Is he honest? is he trustworthy?" Why, as to that, I am sorry to say that he is not to be trusted; he wants watching; he is a little tricky, and will take an undue advantage, if he can. "Then I will have nothing to do with him," will be the invariable reply. Why, then, is honesty the best policy? Because, without it, you will get a bad name, and everybody will shun you.

A character for knavery will prove an insurmountable obstacle to success in almost every undertaking. It will be found that the straight line is, in business, as in geometry, the shortest. In a word, it is almost impossible for a dishonest man to acquire wealth by a regular process of business, because he is shunned as a depredator upon society.

Needy men are apt to deviate from the rule of integrity, under the plea that *necessity* knows no law: they might as well add that it knows no shame. The course is suicidal, and by destroying all confidence, ever keeps them immured in poverty, although they may possess every other quality for success in the world.

Avoid—and young men especially—avoid all base, servile, underhand, sneaking ways. Part with anything rather than your integrity and conscious rectitude; flee from injustice as you would from a viper's fangs; avoid a lie as you would the gates of hell. Some there are who are callous as to this. Some there are who, in stooping to mercantile dishonor and baseness—in driving the immoral bargain—think they have done a clever action. Things are often called by

their wrong names; duplicity is called shrewdness, and wrong-heartedness is called long-headedness; evil is called good, and good evil, and darkness is put for light, and light for darkness. Well! be it so. You may be prosperous in your own eyes; you may have realized an envied fortune; you may have your carriage, and plate, and servants, and pageantry; but rather the shielding and the crust of bread with a good conscience, than the stately dwelling or palace without it. Rather than the marble mausoleum, which gilds and smothers tales of heartless villainy and fraud—rather, far rather, that lowly heap of grass we were wont often to gaze upon in an old village churchyard, with the simple record of a cotter's virtues—"Here lies an honest man!" There is nothing more sad than to be carried like a vessel away from the straight course of principle; to be left a stranded out-cast thing on the sands of dishonor; a man bolstering himself up in a position he is not entitled to. "That is a man of *capital*," says the world, pointing to an unscrupulous and successful swindler. Capital! What is capital? Is it what a man *has*? Is it counted by pounds and pence, stocks and shares, by houses and lands? No! capital is not what a man *has*, but what a man *is*. Character is capital; honor is capital. That is the most fearful of ruin when *character* is gone, when integrity is sold, when honor is bartered for a miserable mess of earthly pottage. God save us from ruin like this! Perish what may; perish gold, silver, houses, lands; let the winds of misfortune dash our vessel on the sunken rock, but let *integrity* be like the valued keepsake which the sailor boy lashed with the rope round his body, the only thing we care to save. Let me die; but let angels read, if friends cannot afford to erect the grave stone—"Here lies an honest man."

CALMNESS.

THE more peaceably and quietly we get on, the better for us and others. In nine cases out of ten, the wisest policy is, if a man cheats you, quit dealing with him; if he is abusive, quit his company; if he slanders you, take care to live so that nobody will believe him. No matter who he is, or how he misuses you, the wisest way is generally to leave him alone, for there is nothing better than this cool, calm, quiet way of dealing with the wrongs we meet.

Calmness is strength. Self-command is always important, and ne-

cessary to moral dignity. He only is great who "ruleth his own spirit." Calmness enables a man to survey his position, to see its perils, to parry and foil approaching harms, and seize upon sudden advantages.

The calmness of a well-ordered spirit is the first element of a strong character. No man is capable of swaying and guiding others who does not govern himself.

And then how sweet the serenity of habitual self-command! How many stinging self-reproaches it spares us! When does a man feel more at ease with himself than when he has passed through a sudden and strong provocation *without speaking a word*, or *in undisturbed good humor*? When, on the contrary, does he feel a deeper humiliation than when he is conscious that anger has made him betray himself by word, look or action?

It is said of Socrates, that whether he was teaching the rules of an exact morality, whether he was answering his corrupt judges or was receiving sentence of death, or swallowing the poison, he was still the same man; that is to say, calm, quiet, undisturbed, intrepid, in a word, wise to the last.

A man once called at the house of Pericles and abused him violently. His anger so transcended him that he did not observe how late it was growing, and when he had exhausted his passion it was quite dark. When he turned to depart, Pericles calmly summoned a servant and said to him, "Bring a lamp, and attend this man home."

Archbishop Leighton was once kept all day out of his study by the thoughtlessness of his servant, who had gone a fishing and carried the key in his pocket. When the man came home in the evening, the Archbishop quietly said to him, "John, the next time you go a fishing, leave the key in the door."

Sir Isaac Newton had nearly completed one of his great works, including a great number of long and complicated calculations, for the press. The sheets lay on his study table. While he was out one evening, a favorite little dog named Diamond jumped on the table, overturned a lamp, set fire to the papers, and so consumed the labor of many years. When the philosopher entered his library and saw the ruin, he exclaimed, "O, Diamond, Diamond, you little know the injury you've done me!"

These men are all great in history. But the majesty of true greatness shines forth in that act of self-command more splendidly than in anything they ever did or wrote.

The celebrated Henderson, the actor, was seldom known to be in a

passion. When at Oxford, he was one day debating with a fellow student, who, not keeping his temper, threw a glass of wine in his face. Mr. Henderson took out his handkerchief, wiped his face, and coolly said, "That, sir, was a digression—now for the argument."

He that can reply calmly to an angry man, is too hard for him. A great man is most calm in storms, a little one most stormy in calms.

Calmness indicates refinement. A gentleman makes no noise; a lady is serene.

CAUTION.

No man should be confident of his own merit; the best err: neither should any rely too much upon his own judgment; for the wisest are deceived. Security is mortal's chiefest enemy. He that falls into error for want of care and diligence to find out the truth, can have no pretence to pardon. We are as much bound to know our duty as obliged to practice it. He who trusts all things to chance makes a lottery of his life; wherein for one happy event, he will meet with ten unhappy ones.

With caution judge of probability,
Things deemed unlikely, e'en impossible,
Experience oft hath proven to be true.

Deliberate slowly, execute promptly. Deliberate with caution, but act with decision. Either yield with graciousness or oppose with firmness. Do not trust to a weak argument because you think you have got a weak adversary; remember, a donkey will eat through his rope, if you only bind him with a hay band, and be all the stronger for it. Measure thy cloth ten times; thou can'st cut it but once. Is it consoling to lose a small fortune in an unlucky speculation, and have all your friends wondering how you could have been such a fool? There is nothing lost by being careful. The danger which is despised arrives soonest.

In our intercourse with the world a cautious circumspection is of great advantage. Slowness of belief, and a proper distrust are essential to success. The credulous and confiding are ever the dupes of knaves and imposters. Ask those who have lost their property how it happened, and you will find in most cases it has been owing to misplaced confidence. One has lost by endorsing; another by crediting;

another by false representations; all of which a little more foresight and a little more distrust would have prevented. In the affairs of this world men are not saved by faith, but by the want of it.

Judge of men by what they do, not by what they say. Believe in looks, rather than in words. Observe all their movements. Ascertain their motives and their ends. Notice what they say or do in their unguarded moments, when under the influence of excitement. The passions have been compared to tortures, which force men to reveal their secrets. Before trusting a man, before putting it in his power to cause you a loss, possess yourself of every available information relative to him. Learn his history, his habits, inclinations and propensities; his reputation for honesty, industry, frugality, and punctuality; his prospects, resources, supports, advantages, and disadvantages; his intentions and motives of action; who are his friends and enemies, and what are his good or bad qualities. You may learn a man's good qualities and advantages from his friends—his bad qualities and disadvantages from his enemies. Make due allowance for exaggeration in both. Finally, examine carefully before engaging in anything, and act with energy afterwards. Have the hundred eyes of Argus beforehand, and the hundred hands of Briarus afterwards.

BRIGHT SIDE.

MEN are blamed for looking at only one side of things, but they are right enough if that side is the bright one. Dr. Johnson used to say that a habit of looking at the best side of every event is better than a thousand pounds a year. The evils inseparably annexed to the present condition of man are so numerous and afflictive, that it has been, from age to age, the task of some to bewail and of others to solace them; and he, therefore, will be in danger of seeing a common enemy, who shall attempt to depreciate the few pleasures and felicities which nature has allowed us.

Horas non numero nisi serenas—"I count only the hours that are serene," is the motto of a sun-dial near Venice. There is a softness and a harmony in the words and in the thought unparalleled. Of all conceits it is surely the most classical. I count only the hours that are serene. What a bland and care-dispelling feeling! How the shadows seem to fade on the dial-plate as the sky lowers, and time presents only a blank, unless as its progress is marked by what is

joyous, and all that is not happy sinks into oblivion! What a fine lesson is conveyed to the mind—to take no note of time but by its benefits, to watch only for the smiles and neglect the frowns of fate, to compose our lives of bright and gentle moments, turning always to the sunny side of things, and letting the rest slip from our imaginations, unheeded or forgotten!

Look on the bright side. It is the right side. The times may be hard, but it will make them no easier to wear a gloomy and sad countenance. It is the sunshine and not the cloud that makes the flower. There is always that before or around us which should fill the heart with warmth. The sky is blue ten times where it is black once. You have troubles, it may be. So have others. None are free from them. Perhaps it is as well that none should be. They give sinew and tone to life—fortitude and courage to man. That would be a dull sea, and the sailor would never get skill, where there was nothing to disturb the surface of the ocean. It is the duty of every one to extract all the happiness and enjoyment he can without and within him, and, above all, he should look on the bright side of things. What though things do look a little dark? The lane will turn, and the night will end in broad day. In the long run, the great balance rights itself. What is ill becomes well; what is wrong becomes right. Men are not made to hang down either heads or lips; and those who do, only show that they are departing from the paths of true common sense and right. There is more virtue in one sunbeam than a whole hemisphere of cloud and gloom. Therefore, we repeat, look on the bright side of things. Cultivate what is warm and genial—not the cold and repulsive, the dark and morose. Don't neglect your duty; look to the bright side; live down prejudice.

Enjoy the glory of the sun, and not put out your eyes by trying to count the spots upon his face. Keep the horrors at arm's length. Never turn a blessing round to see whether it has a dark side to it. Dr. Johnson justly observes: The business of life is to go forward; he who sees evil in prospect, meets it in his way; but he who catches it by retrospection, turns back to find it. That which is feared may sometimes be avoided; but that which is regretted to-day may be regretted to-morrow. We should, to be useful, decidedly condemn the indulgence of brooding over circumstances and events that thoughts cannot mend, because it unstrings the mind; and that once done, it is surprising with what rapidity all its peace unravels itself; and how much it loses of the power of judging rightly on the mixed condition of human affairs.

"I could write down twenty cases," says Cecil, "wherein I wished that God had done otherwise than he did; but which I now see, had I had my own will, would have led to extensive mischief." Bishop Hall quaintly remarks, "For every bad there might be a worse; and when a man breaks his leg, let him be thankful that it was not his neck." When Fenelon's library was on fire, "God be praised," he exclaimed, "that it is not the dwelling of some poor man!" This is the true spirit of submission—one of the most beautiful traits that can possess the human heart. Resolve to see this world on its sunny side, and you have almost half won the battle of life on the outset.

We once knew a man whom neither care nor sorrow seemed to affect; who at sixty had the digestion and flow of spirits of twenty-one; who had acquired a large fortune apparently without an effort; who, in short, was the happiest of men, and the envy of all who knew him. "How is it," we said to him, "you are so fortunate? What talisman secures to you all these advantages?" He smiled as he answered, "I have no talisman, unless it is to make the best of everything."

To make the best of everything! Like a key to a problem, the answer unlocked for us at once the whole of the great mystery. Life is too short and happiness too precious to consume the one or throw away the other in idle, unavailing regrets. Even if ill fortune swells into a flood, threatening to undermine the very ground on which we stand, is it not wiser to strive to bridge the torrent than to wait, bewailing our fate, till the waters swallow us? The weak and unstable succumb to destiny and are washed into oblivion. The wise and brave, accepting circumstances as they present themselves, plunge boldly, like Horatius of old, into the stream, win the farther shore in safety, and earn immortal guerdon and renown.

Few men, if any, ever succeed in life who have not learned to make the best of everything; and generally their success is in exact proportion to their adherence to the rule. Does a debtor fail? Every merchant knows that it is the best course, if the debtor is honest, to accept his first offer of compromition, and not squander money in useless litigation. Have you become insolvent yourself? The worst thing you can do is to give up in despair, and say that it is folly trying to redeem yourself. Has a friend misjudged you, or an enemy done you secret harm? Don't lose precious moments in sentimental grief over ingratitude, or passionate threats at your wrong doer; but go to work on the instant to shame your friend or disarm your foe. Had Astor, when he was a poor German emigrant, made up his mind

that the attempt to be a millionaire was absurd, he might have died a beggar in the almshouse. Had Washington, when Cornwallis pursued him across New Jersey with thirty thousand troops, said that it was hopeless to save America with his fragment of an army, his three thousand tattered continentals, we might all this day have been in slavery to Great Britain; but he said, "If the British cross the Delaware, I will the Alleghanies, and if they are victorious there, I will fly to the wilderness beyond," and this resolution never to give it up, but always to make the best of everything, led to the victory of Trenton and the freedom of the Republic.

We are familiar with people who whine continually at fate. To believe them never was lot so hard as theirs; yet those who know their history will generally tell you that their life has been but one long tale of opportunities disregarded, or misfortunes otherwise deserved. Perhaps they were born poor. In this case they hate the rich, and have always hated them, but without ever having emulated their prudence or energy. Perhaps they have seen their rivals more favored by accident. In this event they forgot how many have been less lucky than themselves; so they squandered their little, because, as they say, they cannot save as much as others. Irritated at life, they grow old prematurely. Dissatisfied with everything, they never permit themselves to be happy. Because they are not born at the top of the wheel of fortune, they refuse to take hold of the spoke as the latter comes around, but lie stubborn to the dirt, crying like spoiled children, neither doing anything themselves, nor permitting others to do it for them.

Make the best of everything! At home, if wife or husband is cross, if servants are careless, if children are irritating, don't fly into a passion, for that will do no good, but make the best of the circumstances, and fulfill your duty, and wait for happier times. Abroad, if things look unpromising, preserve a stout heart, keep cool, and play your hand to the best of your ability.

A determination to make the best of everything is a wonderful smotherer of the difficulties which beset us in our passage through this probationary scene. In Peter Pindar's story of the "Pilgrims and the Peas," two fellows, upon whom the penance of walking to a certain shrine with peas in their shoes had been enjoined, are represented as having performed their tasks under very different circumstances and in very different moods. One of them, having taken the precaution to soften his peas by boiling them, tripped lightly and merrily over the ground; the other, who had not "gumption" enough

to turn his hard pellets into a poultice by the same process, limped and howled all the way. It is pretty much the same in our pilgrimage through this "vale of tears." The impatient and imprudent travel on hard peas; the prudent and sagacious make themselves easy in their shoes, and run cheerfully the race that is set before them.

Men are great as they make others great. We may apply this rule to letters or to the house. Do you think death, and skulls, and lazaret-houses, fit subjects for cabinet pictures? I think the Crucifixion must be treated with more genius than I have seen in Italian art, to be a proper picture for my house. So with dead Romeos, and smothered princes, and battles. Nature does not so. See with what skill she covers up the skeleton. She weaves the tissues and integuments, and draws the skin, and beautifully closes over it, and forces death under ground, and makes the sod to cover it up with leaves; and who and what are you that would lay the ghastly anatomy bare? Don't be a cynic or a disconsolate preacher. Don't present the negative picture, but chant the beauty of the good.

Mrs. Sigourney says: A disposition to dwell on the bright side of character is like gold to the possessor. One of the principal ingredients in the happiness of children is freedom from suspicion, and kind and loving thoughts toward all.

HOPE.

THE expectation of future happiness is the best relief of anxious thoughts, the most perfect cure of melancholy, the guide of life, and the comfort of death. Hope makes that present by a prepossession of that which is to come. Hope deferred maketh the heart sick. How has expectation darkened into anxiety, anxiety into dread, and dread into despair! Expectation, in a weak mind, makes an evil greater, and a good less; but in a resolved mind it digests an evil before it comes, and makes a future good, long before present. We must expect the worst, because it may come; the best, because we know it will come. Hopes and fears chequer human life. He that wants hope, is the poorest man living. Our hopes and fears are the main-springs of all our religious endeavors. There is no one whose condition is so low, but that he may have hopes; nor is any one so high, as to be out of the reach of fears. Hopes and disappointments are the lot and entertainment of human life; the one serves to keep us

from presumption, the other from despair. Hope is the last thing that dieth in man; and though it be exceeding dutiful, yet it is of this good use to us, that while we are traveling through this life, it conducts us in an easier and more pleasant way to our journey's end. When faith, temperance, the graces, and other celestial powers, left the earth, (says one of the ancients,) hope was the only goddess that staid behind. Hope's enchantments never die. Eternal hope! Hope gilds the future. Hope cheers and rouses the soul. Hope and strive is the way to thrive. The man who carries a lantern in a dark night can have friends all around him, walking safely by the help of its rays, and not be defrauded. So he who has the God-given light of hope in his breast, can help on many others in this world's darkness, not to his own loss, but to their precious gain.

SPIRITS.

It is a Spanish maxim, that he who loseth wealth, loses much; ne who loseth a friend, loseth more; but he who loseth his spirits, loseth all.

EXAMPLE.

WE have seen Thorwaldsen in his studio at Rome, busy upon a group of statues which were designed to adorn a royal palace in his native land. The figures stood before him, slowly emerging into life and beauty under his hand and chisel. He had models beside him, and he consulted them; but he had a more perfect model in his own mind. *That* he could not entirely reach, but on he wrought, by blow after blow, by touch after touch; now the contour more rounded, and now the expression more life-like, indefinitely approaching his ideal. The great sculptor eyed his handiwork from this point, from that, from many; he retreated to a distance, he came nearer, and his eye, deep lored in the beautiful, created fresh attractions even where all had seemed symmetry before.

Now, would we thus work out moral beauty? Setting some standard, not ideal but actual before us, would we go on unto perfection, and leave our mark upon our age, so as to be missed when we die?

Then be it ours to study model men, and mark what made them what they were. Testing all by the only perfect model, be it our business to note how men stood, or how men fall in the battle of life. So shall we find stepping stones through the rapids which might otherwise sweep us away, or help in hours of weakness when we might otherwise falter, or hope at times when we might despair, and either sink into feebleness, or have power only for evil.

Every human being is a center of influence for good or for ill. No man can live unto himself. The meshes of a net are not more surely knit together than man to man. We may forget this secret, silent influence. But we are exerting it by our deeds, we are exerting it by our words, we are exerting it by our very thoughts—and he is wise with a wisdom more than that of earth who seeks to put forth the highest power for good, be his home a hut or a hall, a cabin or a palace.

APPLICATION.

No one was ever born a Newton or an Edwards. It is patient, vigorous and long continued application, that makes the great mind. All must begin with the simplest elements of knowledge, and advance from step to step in nearly the same manner. When a man has been laying out that time in the pursuit of some great and important truth, which others waste in a circle of gay follies, he is conscious of having acted up to the dignity of his nature; and from that consciousness there results that serene complacency, which, though not so violent, is much preferable to the pleasures of animal life.

He that would be sure to have his business well done, must either do it himself or see to the doing of it. Every man is the architect of his own fortune. A young man, writing to the *Scientific American*, says: "I am now twenty-three years of age; when I was eighteen I did not know how to add one-half and two-thirds together; I was a poor boy, wild and reckless; I chanced to get possession of the *Life of George Stephenson*; I gave it a thorough perusal; I made up my mind I would, by the help of God and the energies of man, elevate my position in life, and I have been exceedingly prosperous since that time. I worked seventeen hours and studied three a day, for twelve months; after that I worked from four and a half o'clock in the morning until five in the evening, and studied till twelve and one

at night, for two and a half years. I then got a situation in an iron manufacturing establishment, at a very low salary. My employers were not aware of my determined spirit when they hired me, and now I have complete control of the entire establishment, getting a large salary; the books have to pass my inspection, as well as all other things connected with the business. I am determined to persevere in my studies as long as I live." The fate of every young man is in his own hands.

Dr. Johnson was once asked how it was that the Christian fathers, and the men of other times, could find leisure to fill so many folios with the productions of their pens. "Nothing is easier," said he, and he at once began a calculation to show what would be the effect in the ordinary term of a man's life, if he wrote only one octavo page in a day. The result in thirty or forty years would account for all that Jerome, or Chrysostom, or Augustine, that Luther, Calvin, or Baxter has done.

Men with the commonest brains and the most slender powers will accomplish much, if they will but apply themselves wholly and indefatigably to one thing at a time.

EARLY RISING.

THE industrious, the active-minded, the enthusiastic in pursuit of knowledge or gain, are up betimes at their respective occupations. Dean Swift says, that he never knew any man to rise to eminence, who lay in bed of a morning; and Dr. Franklin, in his peculiar manner, says, that he who rises late may trot all day, but never overtake his business. The difference between rising at five and seven o'clock in the morning, for the space of forty years, supposing a man to go to bed at the same time at night, is nearly equivalent to the addition of ten years to a man's life. I would inscribe on the curtains of your bed, and the walls of your chamber, said Lord Chatham, "If you do not rise early, you can make progress in nothing. If you do not set apart your hours of reading, if you suffer yourself, or any one else, to break in upon them, your days will slip through your hands, unprofitable and frivolous, and unenjoyed by yourself."

Napoleon was an early riser; so were Frederick the Great, Charles the Twelfth, and Washington. Whatever may be the quantity of

sleep required, early rising is essential to health, and promotes longevity.

"Rise with the lark, and with the lark to bed."

"Bright Chanticleer proclaims the dawn,
And wakes the sluggard in the morn."

"Early to bed, and early to rise,
Will make a man healthy, wealthy, and wise."

NEVER TOO OLD TO LEARN.

SOCRATES, at an extreme age, learned to play on musical instruments, for the purpose of resisting the wear and tear of old age. Cato, at eighty years of age, thought proper to learn the Greek language. Plutarch, when between seventy and eighty, commenced the study of Latin. Boccacio was thirty-five years of age when he commenced his studies in polite literature. Yet he became one of the three great masters of the Tuscan dialect, Dante and Petrarde being the other two. Sir Henry Spelman neglected the sciences in his youth, but commenced the study of them when he was between fifty and sixty years of age. After this time he became a most learned antiquarian and lawyer. How different the present estimate put upon experience from that which characterized a certain period of the Grecian Republic, when a man was not allowed to open his mouth in caucuses or political meetings, who was under forty years of age.

Colbert, the famous French minister, at sixty years of age returned to his Latin and law studies. Ludivico, at the age of one hundred and fifteen, wrote the memoirs of his own times. A singular exertion, noticed by Voltaire, who was himself one of the most remarkable instances of the progress of age in new studies. Ogilby, the translator of Homer and Virgil, was unacquainted with Latin and Greek till he was past fifty. Franklin did not fully commence his philosophical pursuits till he had reached his fiftieth year. Accorso, a great lawyer, being asked why he began the study of law so late, answered, that indeed he began it late, but he should, therefore, master it the sooner. This agrees with our theory, that healthy old age gives a man the power of accomplishing a difficult study in much less time than would be necessary to one of half his years. Dryden, in

his sixty-eighth year, commenced the translation of the Iliad; and his most pleasing productions were written in his old age.

We could go on and cite thousands of examples of men who commenced a new study and struck out into an entirely new pursuit, either for livelihood or amusement, at an advanced age. But every one familiar with the biography of distinguished men will recollect individual cases enough to convince him that none but the sick and indolent will ever say, *I am too old to learn.*

BEGINNINGS.

REMEMBER, in all things, that if you do not begin, you will never come to an end. The first weed pulled up in the garden, the first seed in the ground, the first shilling put in the saving bank, and first mile traveled on a journey, are all important things; they make a beginning, and thereby a hope, a promise, a pledge, an assurance that you are in earnest with what you have undertaken. How many a poor, idle, erring, hesitating outcast is now creeping and crawling his way through the world who might have held up his head and prospered, if instead of putting off his resolutions of industry and amendment, he had only made a beginning!

It is a great point for young men to begin well; for it is in the beginning of life that that system of conduct is adopted, which soon assumes the force of habit. Begin well, and the habit of doing well will become quite as easy as the habit of doing badly. Well begun is half ended, says the proverb; and a good beginning is half the battle. Many promising young men have irretrievably ruined themselves by a first false step at the commencement of life; while others, of much less promising talents, have succeeded simply by beginning well, and going onward. The good practical beginning is, to a certain extent, a pledge, a promise, and an assurance, of the ultimate prosperous issue. There is many a poor creature, now crawling through life, miserable himself and the cause of sorrow to others, who might have lifted up his head and prospered, if, instead of merely satisfying himself with resolutions of well-doing, he had actually gone to work and made a good practical beginning.

Too many are, however, impatient of results. They are not satisfied to begin where their fathers did, but where they left off. They think to enjoy the fruits of industry without working for them. They

cannot wait for the results of labor and application, but forestall them by too early indulgence.

A worthy Scotch couple, speaking of their favorite son, and the cause why he had gone wrong in life, used to tell how they themselves had begun life with working hard, living upon porridge and humble fare, and gradually added to their comforts as their means improved, until at length they were able to dine off a bit of roast meat, and sometimes a "boiled chuckie," or fowl. But as for Jock, their son, *he* had set up in business, and, without waiting for success, or even laboring for it, he began life as if he had already secured it; as his parents were wont to tell the story, "*he began wi' the chuckie first*;" in other words, he began at the wrong end.

If there is one thing in life more important than another, it is to begin right. The best enterprises often fail for want of this. Young men are sometimes in such a hurry to get into business on their own account that they commence with inadequate means, or an insufficient connection, or in ignorance of many necessary details. In nine cases out of ten, under such circumstances, they fail. Or they begin with trusting too many, or on too long a time, and have to struggle under difficulties for years, and perhaps become insolvent at last. Or they fancy, with the sanguine feelings of the young, that their profits will be greater than the result verifies, and, on the faith of this delusion, launch out into expenses which they can but illy afford. Or they speculate, before they have realized the money to speculate on, so that if the speculation proves unfortunate, they not only ruin themselves, but defraud honest creditors, whose funds they have, in point of fact, speculated with.

Other men make a mistake in marrying. They do not in this matter either begin right. Have they their fortunes still to make? Too often, instead of seeking one who would be a helpmate in the true sense of the term, they unite themselves to a giddy, improvident creature, with nothing to recommend her but the face of a doll and a few showy accomplishments. Such a wife, they discover too late, neither makes home happy, nor helps to increase her husband's means. At first, thriftless, extravagant and careless, she gradually becomes cross and reproachful, and while she envies other women, and reproaches her husband because he cannot afford to maintain her like them, is really the principal cause of his ill fortune. The selection of a proper companion is one of the most important concerns of life. A well-assorted marriage assists, instead of retarding, a man's prosperity. Begin right in this respect. Select a sensible, agreeable,

amiable woman, and you will have secured a prize "better than riches." If you do otherwise, then, alas for you!

Begin right in establishing a character. The only way to do this is to be what you seem, for hypocrites and rogues are always found out in the end. Honesty is the best policy. But no man can be upright, amid the various temptations of life, unless he is honest for the right's sake. You should not be honest from the low motive of policy, but because you feel the better for being honest. The latter will hold you fast, let the element set as it will, let storms blow ever so fiercely; the former is but a cable of pack-thread, which will snap apart. In the long run, character is better than capital. Most of the great American merchants, whose revenues outrank those of princes, owe their colossal fortunes principally to a character for integrity and ability. Lay the foundations of a character broad and deep. Build them on a rock, and not on sand. The rains may then descend, the floods rise and the winds blow, but your house will stand. Begin right. But, establish a character for loose dealings, and, lo! some great tempest will sweep it away. Begin right!

At thy first entrance upon thy estate, said a wise man once, keep a low sail, that thou mayst rise with honor; thou canst not decline without shame; he that begins where his father ends, will end where his father began.

Many an unwise parent labors hard and lives sparingly all his life, for the purpose of leaving enough to give his children a start in the world, as it is called. Setting a young man afloat with money left him by his relatives is like tying bladders under the arms of one who cannot swim: ten chances to one he will lose his bladders and go to the bottom. Teach him to swim, and he will never need the bladders. Give your child a sound education, and you have done enough for him. See to it that his morals are pure, his mind cultivated, and his whole nature made subservient to the laws which govern men, and you have given what will be of more value than the wealth of the Indies. To be thrown upon one's resources, is to be cast into the very lap of fortune, for our faculties then undergo a development, and display an energy, of which they were previously insusceptible.

EARLY OBSCURITY AND FUTURE EMINENCE.

A LONG time ago, a little boy twelve years old, on his road to Vermont, stopped at a country tavern, and paid for his lodging and breakfast by sawing wood, instead of asking for it as a gift. Fifty years later, the same boy passed that same little inn as GEORGE PEABODY, the banker, whose name is the synonym of magnificent charities—the honored of two hemispheres. He was born poor in Danvers, Massachusetts, and by beginning right and pursuing a course of strict honesty, integrity, industry, activity and Christian benevolence, he has been able to amass great wealth. Some years since he made a generous gift to his native town; and also remembered the city of Baltimore, Maryland, where he long resided, by a liberal donation. For the last twenty-five years, having done business in London, and being now past sixty years old, he has given £150,000 sterling—nearly \$750,000—to be devoted to the benefit of the poor of that city.

Peter Cooper, the New York millionaire, and founder of the Cooper Institute, which he built at an expense, including the ground, of over \$630,000, and gave to the city to be devoted to the elevation of the working classes, by instruction without charge, was born poor, and worked hard in a hatter's shop until he was seventeen, then learned coach making. He built after his own design, the first locomotive engine ever used on this continent.

When Cornelius Vanderbilt was a young man, his mother gave him fifty dollars of her savings to buy a small sail boat, and he engaged in the business of transporting market-gardening from Staten Island to New York city. When the wind was not favorable he would work his way over the shoals by pushing the boat along by poles, putting his own shoulder to the pole, and was very sure to get his freight in market in season. This energy gave him always a command of full freights, and he accumulated money. After awhile he began to build and run steamboats, and he is now reputed to be worth more than nineteen millions of dollars, after making the government a present, as a free gift, of a steamship that cost \$800,000.

Mr. Tobin, the President of the Hudson River Railroad Company is a millionaire. He is not yet forty years of age. He began life as a steamboat clerk with Commodore Vanderbilt. When he took his position the Commodore gave him two orders: first, to collect fare of everybody and have no dead heads on the boat; second, to start the boat on time, and wait for nobody. The Commodore then lived at

Staten Island. Tobin obeyed his orders so literally that he collected fare of the Commodore on the first evening, and left him on the wharf the next morning, as the boat could not wait. The Commodore was coming down the wharf leisurely, and supposed, of course, the boat would wait for him. He proved a man after Vanderbilt's own heart. He became his confidential clerk and broker, bought and sold Harlem and made for himself a fortune.

In 1802, Mr. Bidwell, a law student in Stockbridge, told a poor lad that if he would catch and turn out his horse he might have it to ride home to keep Thanksgiving. The boy accepted the offer, and the day before Thanksgiving, as he was mounted on the horse ready to start for home, Mr. Bidwell handed him a silver dollar—the first dollar the boy ever had. Instead of spending it for personal gratification, as most boys now-a-days do, he bought a sheep with it. From that sheep he had, in 1832, a flock of ten hundred and sixty sheep which he sold for \$1506. The money he invested in up-town lots in New York city, purchasing ten lots for \$250 each, which he sold in two years, for \$12,000. This was the beginning of the fortune of Nathan Jackson, Esq., distinguished for his generous and munificent donations at various times to William's College, Massachusetts.

Wm. M. Stone, Governor of Iowa, it is said, was once a canal driver on the Ohio canal at three dollars a month. While studying law with General Bierce, at Akron, Ohio, Mr. Stone worked eight hours a day for Mr. G. D. Sanford, for the purpose of earning money to pay his board and tuition. John Butterfield, Mayor of the city of Utica, N. Y., has become the richest man in that city from the humble calling of stage driver.

Stephen Girard left his native country at the age of ten or twelve years, as cabin boy on a vessel. He came to New York in that capacity. His deportment was distinguished by such fidelity, industry and temperance, that he won the attachment and confidence of his master, who generally bestowed on him the appellation of 'my Stephen.' When his master gave up business he promoted Girard to the command of a small vessel. Girard was a self-taught man, and the world was his school. It was a favorite theme with him, when he afterwards grew rich, to relate that he commenced life with a sixpence, and to insist that a man's best capital was his industry. All professions and all occupations, which afforded a just reward for labor, were alike honorable in his estimation. He was never too proud to work. During the revolutionary war he bottled and sold cider and claret. In the time of the fever, in 1793, when consternation had

seized the whole population of the city of Philadelphia, Stephen Girard, then a rich merchant, offered his services as a nurse in the hospital. His offers were accepted, and in the performance of the most loathsome duties, he walked unharmed in the midst of the pestilence. He used to say to his friends, "When you are sick, if anything ails you, do not go to a doctor, but come to me, I will cure you."

Far back in the teens of the present century, a young man asked for employment in the Springfield armory: but he was poor and modest, and had no friends, so he went away without it; but, feeling the man within him, he sought work until he found it. An age later, he visited that armory a second time, not as a common day-laborer, but as the ablest speaker of the House of Representatives, and for many years Governor of Massachusetts.

Said the lamented Gen. Mitchell: "When I was a boy of twelve years, I was working for twenty-five cents a week with an old lady, and I will tell you I had my hands full; but I did my work faithfully. I used to cut wood, fetch water, make fires, and scrub and scour mornings for the old lady, before the real work of the day commenced; my clothes were bad, and I had no means of buying shoes, so was often bare-footed." One morning she called him a liar, and he left her. He says: "I had not a cent in my pocket when I stepped out into the world. * * * An independent spirit, and a steady, honest conduct, with what capacity God has given me—as he has given you—have carried me successfully through the world."

Thurlow Weed, whose father was a poor but honest and hard-working man, occupying a log house upon a small clearing near the Onondaga river, Cortland county, New York, says: My first employment was in attendance upon an ashery. This labor was succeeded, when the spring had advanced far enough, by the duties of the sap-bush. During the day I would lay in a good stock of fat pine, by the light of which blazing bright before the sugar-house, I have passed many and many a delightful night in reading. I remember in this way to have read a history of the French revolution, and to have obtained from it a better and more enduring knowledge of its events and horrors, and of the actors in that great national tragedy, than I have received from all subsequent readings. I remember also how happy I was in being able to borrow the book of a Mr. Keyes, after a two-mile tramp through the snow, shoeless, my feet swaddled in the remnants of a rag carpet.

Says Cobbet: I learned grammar when I was a private soldier, on the pay of sixpence a day. The edge of my berth, or that of my

guard bed, was my seat to study in ; my knapsack my bookcase, and a bit of board lying on my lap was my writing table. I had no money to purchase a candle or oil ; in winter, it was rarely that I could get any light but that of the fire, and only my turn even of that. To buy a pen or piece of paper, I was compelled to forego some portion of my food, though in a state of half starvation. I had not a moment of time that I could call my own ; and I had to read and write amid the talking, laughing, singing, whistling, and bawling of at least half a score of the most thoughtless men—and that, too, in their hours of freedom from all control. And I say, if I, under these circumstances, could encounter and overcome the task, is there, can there be, in the whole world, a youth who can find an excuse for the non-performance ?

Of P. R. Spencer, the author of the Spencerian system of penmanship, it is said that, “ the smooth sand beach of Lake Erie constituted the foolscap in and on which, for want of other material, he perfected essentially the system which meets such general favor in our common and commercial schools, and in our business and literary circles.” When we reflect upon the immense popularity of his system, which, passing beyond the limits of our own country, has been re-engraved in England, is used in the model counting-rooms of London, Liverpool and Manchester, and is also the adopted system of the English Department of the University of Zurich, in Switzerland, we must accord to its honored author chaste and elevated powers of conception, with bold and tireless grasp, of just apprehension, and agree that the barefooted boy of fifty years ago *must have been thinking*, and thinking *aright*, and thinking with *no ordinary* mind, when he gave to his coinings in the sands such vitality of science, that the world has adopted and embalmed them as the most beautiful imagery of “ the art.”

Some years ago, as good Mr. Gallaudet was walking in the streets of Hartford, there came running a poor boy, whose intelligent eye fixed the gentleman's attention. The boy inquired :

“ Please, sir, can you tell me of any one who would like a boy to work for him and learn to read ? ”

“ Whose boy are you and where do you live ? ”

“ I have no parents, sir,” was the reply, “ and have just come away from the work-house because they would not teach me to read.”

The gentleman made arrangements with the authorities of the town, and took the boy into his family. He soon acquired the confidence of Mr. Gallaudet by his faithfulness and honesty. He soon

learned to read and was allowed the use of his master's library, whereby he made rapid progress in the acquisition of knowledge.

It became necessary, after a while, that George should leave Mr. Gallaudet, when he was apprenticed to a cabinet maker in the neighborhood. There the same integrity won for him favor.

To gratify his inclination for study, his kind master had a little room fitted up for him in the upper part of the shop, where George devoted his leisure time to his favorite pursuits. He made rapid attainments in mathematics, in the French language, and other branches of learning.

After being in this situation a few years, as he sat at tea with the family one evening, he all at once remarked that he wanted to go to France.

"Go to France," said his master, surprised that the apparently contented and happy youth had thus suddenly become dissatisfied with his situation,—“for what?”

"Please, sir, will you ask Mr. Gallaudet to call?" continued George, "and I will explain."

His kind friend was invited accordingly, and at tea-time the apprentice presented himself with his manuscripts in English and French, and explained his singular intention to go to France.

"In the time of Napoleon," said he, "a prize was offered by the French government for the simplest rule for measuring plain surfaces. The prize has never been awarded, and that method I have discovered."

He then demonstrated his problem, to the surprise and gratification of his friends, who immediately furnished him with means of defraying his expenses, and with letters of introduction to Hon. Lewis Cass, then the American minister to the court of France. He was introduced to Louis Philippi, and, in the presence of the king, nobles and plenipotentiaries, this youth demonstrated his problem, amid the plaudits of the court. He received the prize, besides valuable presents from the king.

He then took letters of introduction and came to the court of St. James, and gained a similar prize, offered by the Royal Society. He then returned to the United States. There he was preparing to secure the benefit of his discovery by patent, when he received a letter from the Emperor Nicholas himself, one of whose ministers had witnessed his demonstrations at London, inviting him to make his residence at the Russian court, and furnished him with ample means for his outfit.

He complied with the invitation, repairing to St. Petersburg, became professor of mathematics in the royal college, under the special protection of the Emperor of all the Russias !

One to-day is worth two to-morrows. Boys, use your spare moments well ! Had George Wilson been an *idle* boy, spending his evenings in the streets, or in bad company, he would never have "stood before kings."

Bayard Taylor says, in one of his articles, giving a very humorous account of his way of life on his first visit to London : In a word, my associations were not of the most respectable character. I was, reluctantly, forced to this conclusion. But how could it be helped ? When a man has but three shillings a day, he cannot keep four shilling society, without cheating somebody. I lodged in a vulgar hole, it is true ; but, then, I paid my reckoning. Honest Bayard ! A man who commences life in this manner is sure of success.

Said Daniel Webster : It is only the shallow-minded pretenders who make either distinguished origin a matter of personal merit, or obscure origin a matter of personal reproach. A man who is not ashamed of himself, need not be ashamed of his early condition. It did happen to me to be born in a log cabin, raised among the snow-drifts of New Hampshire, at a period so early that when the smoke first rose from its rude chimney, and curled over the frozen hills, there was no similar evidence of a white man's habitation between it and the settlement on the Canada. Its remains still exist. I make it an annual visit. I carry my children to it, and teach them the hardships endured by the generations before them. I love to dwell on the tender recollections, the kindred ties, the early affections, and the narration and incidents which mingle with all I know of this primitive family abode. I weep to think that none of those who inhabited it are among the living ; and if I fail in affectionate veneration for him who raised it, and defended it against savage violence and destruction, cherished all domestic comforts beneath its roof, and through the fire and blood of seven years' revolutionary war, shrank from no toil, no sacrifice, to save his country and to raise his children to a condition better than his own, may my name and the name of my posterity be blotted from the memory of mankind.

A man who is not at heart ashamed of himself need not be ashamed of his early condition in life. Many of the most eminent names the history of our country and of the world can produce have sprung from obscurity. Andrew Johnson, our present President, commenced life a practical tailor. Our lamented President Lincoln, it is well known,

commenced life poor and labored hard. John Adams, the elder, was the son of a shoemaker, and was in youth himself put to the trade, by his father, a pious deacon. Roger Sherman, who was a member of Congress from Connecticut, was sent there from the shoemaker's bench.

Among the most eminent of English statesmen and jurists, we find those whose birth, education, and early associations were of the most unpromising sort: sons of horse-jockeys, strolling players, barbers, small dealers in old books, errand boys, newspaper reporters, clerks, &c., &c. These men overthrew all obstacles by native strength of character, surmounted the barriers of a matured social system, exhibiting practically their patent of nobility—the gift of the King of Kings, which is generally understood by the powers that be in Great Britain. Commingling this blood with that of the conquerors at Hastings, it ennobles nobility of birth, by conferring heaven-derived genius fresh from its fountain.

To a young friend, ambitious to obtain eminence as a lawyer and jurist, Lord Erskine recommended to squander his fortune, marry and spend his wife's fortune, then affront all his wealthy friends, in short, to destroy totally all resources without himself, to have nothing, absolutely nothing, to fall back upon when prostrated by discouragement, and then, said he, you will draw from the profoundest depths a power that you never dreamed you possessed, and that will not only astonish yourself but society, and secure to you fame, fortune, influence and station. This is the secret of the success of poor men's sons, while the children of the wealthy fail. One knows if he falls, he will drop upon a soft cushion, the other that a hard, and cold bed will be his fate, while a hard, cold world will trample upon his prostrated form and prospects.

Obscurity and poverty are the wholesome disciplinary methods of nature to insure what otherwise would not be done. Wealth is really nothing, or if more than nothing, it is a clog to the career of any sound mind in a sound body. Remember this, when social superciliousness would depress, when opulence forgets its true origin, and station turns its back upon the ladder it has used to mount above the ordinary level.

From the barber's shop, says Samuel Smiles, rose Sir Richard Arkwright, the inventor of the spinning-jenny, and the founder of the cotton manufacture of Great Britain; Lord Tenterden, one of the most distinguished of English Lord Chief Justices; and Turner, the very greatest among landscape painters.

Shakespeare's father was a butcher and grazier ; and Shakespeare himself is supposed to have been in early life a wool comber ; whilst others aver that he was an usher in a school, and afterwards a scrivener's clerk.

The common class of day labors has given us Brindley, the engineer, Cook the navigator, and Burns, the poet.

Masons and bricklayers can boast of Ben Jonson, who worked at the building of Lincoln's Inn with a trowel in his hand and a book in his pocket, Edwards and Telford, the engineers, Hugh Miller, the geologist, and Allen Cunningham, the writer and sculptor. John Hunter, the physiologist, Ronevey and Opie, the painters, Professor Lee, the orientalist, and John Gibbons, the sculptor, were carpenters. Wilson, the ornithologist, Dr. Livingstone, the missionary traveler, and Tannahill, the poet, were weavers. Samuel Drew, the essayist, and Gifford, the editor of the "Quarterly Review," were shoemakers. Admiral Hobson, one of the gallantest of British seaman, was originally a tailor.

LITTLE THINGS.

THERE is nothing too little for so little a creature as man. It is by studying little things that we attain the great art of having as little misery and as much happiness as possible. "If a straw," says Dryden, "can be made the instrument of happiness he is a wise man who does not despise it." A very little thing makes all the difference. You stand in the engine-room of a steamer ; you admit the steam to the cylinders, and the paddles turn ahead ; a touch of a lever, you admit the self-same steam to the self-same cylinders, and the paddles turn astern. It is so, oftentimes, in the moral world. The turning of a straw decides whether the engines shall work forward or backward. Look to the littles. The atomic theory is the true one. The universe is but an infinite attrition of particles. The grandest whole is resolvable to fractions ; or, as the ditty has it—

"Little drops of water and little grains of sand,
Fill the mighty ocean and form the solid land."

So with character, fortune, and all the concerns of life—the littles combined, form the great bulk. If we look well to the disposition of these, the sum total will be cared for. It is the minutes wasted, that

wound the hours and mar the day. It is the pennies neglected, that squander the dollars. The majority of men disdain littles—to many, fractions are “vulgar” in more senses than the rule implies. It is apt to be thought indicative of a narrow mind and petty spirit to be scrupulous about littles. Yet from littles have sprung the mass of great vices and crimes. In habits, in manners, in business, we have only to watch the littles, and all will come out clear. The smallest leak, overlooked, may sink a ship—the smallest tendency to evil thinking or evil doing, left unguarded, may wreck character and life. No ridicule should dissuade us from looking to the littles. The greatest and best of men have not been above caring for the littles—some of which, have to do with every hour and every purpose of our lives.

Often what seems a trifle, a mere nothing by itself, in some nice situations turns the scale of fate, and rules the most important actions. The cackling of a goose is fabled to have saved Rome from the Gauls, and the pain produced by a thistle to have warned a Scottish army of the approach of the Danes; and according to the following anecdote from Randall’s *Life of Jefferson*, it seems that flies contributed to hasten the American Independence: While the question of Independence was before Congress, it had its meeting near a livery stable. Its members wore short breeches and silk stockings, and, with handkerchief in hand, they were diligently employed in lashing the flies from their legs. So very vexatious was this annoyance, and to so great an impatience did it arouse the sufferers, that it hastened, if it did not aid in inducing them to promptly affix their signatures to the great document which gave birth to an empire republic!

The anecdote I had from Mr. Jefferson, at Monticello, who seemed to enjoy it very much—as well as to give credit to the influence of the flies. He told me with much glee, and seemed to retain a vivid recollection of the severity of an attack from which the only relief was signing the paper and flying from the flies.

John McClure, an eminent banker in New York, was recently taught the importance of crossing his *t*’s by an impressive lesson. He wrote to his agent in London to invest \$60,000 for him in State securities, but he failed to cross the first *t*, and his agent bought for him an interest in a slate quarry in Wales. The agent was stupid, but he obeyed orders literally.

A Philadelphia merchant being applied to by a young man for a situation refused him, whereupon the young man starting to go out of the store picked up a pin, which the merchant observed and called

to him giving him at once the situation applied for. The young man proved to be the best clerk in the establishment.

The most trifling actions that affect a man's credit, says Franklin, are to be regarded. The sound of your hammer at five in the morning, or nine at night, heard by a creditor, makes him easy six months longer; but if he sees you at the billiard-table, or hears your voice at a tavern, when you should be at work, he sends for his money the next day, demands it before he can receive it in a lump.

It has been remarked, that the world punishes with too great severity the error of those who imagine that the ignorance of little things may be compensated by the knowledge of the great; for so it is, that as more can detect petty failings than can distinguish or esteem great qualifications, and as mankind is in general more easily disposed to censure than to admiration, contempt is often incurred by slight mistakes, which real virtue or usefulness can not counterbalance.

Yet such mistakes and inadvertencies, it is not easy for a man deeply immersed in study to avoid; no man can become qualified for the common intercourses of life by private meditation: the matters of the world are not a regular system, planned by philosophers upon settled principles, in which every cause has a congruous effect, and one part has a just reference to another. Of the fashions prevalent in every country, a few have arisen perhaps, from particular temperatures of the climate; a few more from the constitution of the government; but the greater part have grown up by chance, been started by caprice, been contrived by affectation, or borrowed without any just motives of choice from other countries.

Of all these, the savage that hunts his prey upon the mountains, and the sage that speculates in his closet, must necessarily live in equal ignorance; yet by the observation of these trifles it is, that the ranks of mankind are kept in order, that the address of one to another is regulated, and the general business of the world carried on with facility and method.

We cut the diamond with dust, which we can not even scratch with steel, and many a man's spirit is worn away and brought down with petty cares and small annoyances, who would have struggled manfully against great evils. Though some small evils, like invisible insects, inflict pain, and a single hair may stop a vast machine, yet the chief secret of comfort lies in not suffering trifles to vex one, and in prudently cultivating an undergrowth of small pleasures, since very few great ones, alas! are let on long leases!

Small troubles are always more difficult to encounter and bear than great ones. No person who has lived long in this world of troubles, has failed to detect this in his own experience.

Men will bear troubles of the heaviest nature patiently one day, and sink down in despair, the very next, under the most frivolous occurrences imaginable. Especially is this likely to be the case when troubles come together, and the saying is that they never come singly. It is then that they destroy the patience, and with it the indispensable virtue of self-control in the sufferer.

It is because patience under small troubles is so rare, that its exercise denotes a great spirit. Such was that of Job when covered with boils, and tempted to "curse God, and die!"

The young cannot be too frequently or emphatically warned against succumbing to small troubles. They should be taught to bear up against them, and study that patience which has been characterized as a great virtue.

Little troubles wear the heart out. It is easier to throw a bomb shell a mile than a feather—even with artillery. Little faults, no less than great crimes, can hide the light of heaven from the soul. Just breathe upon the glasses of a telescope, and the dew of your breath will shut out all the stars.

Trifles are not to be despised. The nerve of a tooth, not so large as the finest cambric needle, will sometimes drive a strong man to distraction. A musquito can make an elephant absolutely mad. The coral rock, which causes a navy to founder, is the work of worms. The warrior that withstood death in a thousand forms may be killed by an insect. For want of a nail the shoe was lost, for want of a shoe the horse was lost, for want of a horse the rider was lost. Every pea helps to fill the peck. Little and often fills the purse. Moments are the golden sands of time. Every day is a little life; and our whole life is but a day repeated; those, therefore, that dare lose a day, are dangerously prodigal; those that dare misspend it, desperate. Springs are little things, but they are sources of large streams—a helm is a little thing, but it governs the course of a ship—a bridle bit is a little thing, but see its use and power—nails and pegs are little things, but they hold parts of large buildings together—a word, a look, a frown, all are little things, but powerful for good or evil. Think of this, and mind the little things. Pay that little debt—it's promised, redeem it—if it's a shilling, hand it over—you know not what important event hangs upon it. Keep your word sacredly—keep it to the children,

they will mark it sooner than anybody else, and the effect will probably be as lasting as life. Mind little things.

Sedulous attention and painstaking industry always mark the true worker. The greatest men are not those who "despise the day of small things," but those who improve them the most carefully. Michael Angelo was one day explaining to a visitor at his studio what he had been doing at a statue since his previous visit. "I have retouched this part,—polished that,—softened this feature,—brought out that muscle,—given some expression to this lip, and more energy to that limb." "But these are trifles," remarked the visitor. "It may be so," replied the sculptor, "but recollect that trifles make perfection, and perfection is no trifle." So it was said of Nicholas Poussin, the painter, that the rule of his conduct was, that "whatever was worth doing at all was worth doing well;" and when asked, late in life, by what means he had gained so high a reputation among the painters of Italy, he emphatically answered, "Because I have neglected nothing."

It is the intelligent eye of the careful observer which gives apparently trivial phenomena their value. So trifling a matter as the sight of sea-weed floating past his ship, enabled Columbus to quell the mutiny which arose amongst his sailors at not discovering land, and to assure them that the eagerly sought New World was not far off. There is nothing so small that it should remain forgotten; and no fact, however trivial, but may prove useful in some way or other if carefully interpreted. Who could have imagined that the famous "chalk-cliffs of Albion" had been built up by tiny insects,—detected only by the help of the microscope,—of the same order of creatures that have gemmed the sea with islands of coral! And who that contemplates such extraordinary results, arising from infinitely minute operations, will venture to question the power of little things?

It is the close observation of little things which is the secret of success in business, in art, in science, and in every pursuit in life. Human knowledge is but an accumulation of small facts, made by successive generations of men, the little bits of knowledge and experience carefully treasured up by them growing at length into a mighty pyramid. Though many of these facts and observations seemed in the first instance to have but slight significance, they are all found to have their eventual uses, and to fit into their proper places. Even many speculations seemingly remote turn out to be the basis of results the most obviously practical. In the case of the conic sections discovered by Apollonius Pergæus, twenty centuries elapsed before they

were made the basis of astronomy,—a science which enables the modern navigator to steer his way through unknown seas, and traces for him in the heavens an unerring path to his appointed haven. And had not mathematicians toiled for so long, and, to uninstructed observers, apparently so fruitlessly, over the abstract relations of lines and surfaces, it is probable that but few of our mechanical inventions would have seen the light.

When Franklin made his discovery of the identity of lightning and electricity, it was sneered at, and people asked, “Of what use is it?” to which his apt reply was, “What is the use of a child? It may become a man!” When Galvani discovered that a frog’s leg twitched when placed in contact with different metals, it could scarcely have been imagined that so apparently insignificant a fact could have led to important results. Yet therein lay the germ of the electric telegraph, which binds the intelligence of continents together, and doubtless before many years elapse will “put a girdle round the globe.” So, too, little bits of stone and fossil, dug out of the earth, intelligently interpreted, have issued in the science of geology and the practical operations of mining, in which large capitals are invested and vast numbers of persons profitably employed.

There are no such things as trifles in the biography of man. Drops make up the sea. Acorns cover the earth with oaks, and the ocean with navies. Sands make up the bar in the harbor’s mouth, on which vessels are wrecked; and little things in youth accumulate into character in age, and destiny in eternity. All the links in that glorious chain which is in all and around all, we can see and admire, or at least admit; but the staple to which all is fastened, and which is the conductor of all, is the Throne of Deity.

MAXIMS, PRECEPTS AND RULES.

HON. STEPHEN ALLEN’S POCKET-PIECE.

AMONG the victims of the Henry Clay disaster, was Stephen Allen, Esq., an aged man of the purest character, formerly a mayor of New York, beloved and esteemed by all who knew him. In his pocket was found a printed slip, apparently cut from a newspaper, of which the following is a copy:

Always keep good company or none. Never be idle.

If your hands cannot be usefully employed, attend to the cultivation of your mind.

Always speak the truth. Make few promises.

Live up to your engagements. Keep your own secrets, if you have any.

When you speak to a person, look him in the face.

Good company and good conversation are the very sinews of virtue.

Good character is above all things else.

Your character cannot be essentially injured, except by your own acts.

If any one speaks evil of you, let your life be so that none will believe him.

Drink no kind of intoxicating liquors.

Ever live (misfortune excepted) within your income.

When you retire to bed, think over what you have been doing during the day.

Make no haste to be rich, if you would prosper.

Small and steady gains give competency with tranquility of mind.

Never play at any game of chance.

Avoid temptation, through fear you may not withstand it.

Earn money before you spend it.

Never run into debt unless you see a way to get out again.

Never borrow if you can possibly avoid it.

Do not marry until you can support a wife.

Never speak evil of any one.

Be just before you are generous.

Keep yourself innocent if you would be happy.

Save when you are young to spend when you are old.

Read over the above maxims at least once a week.

HUNT'S BUSINESS PRECEPTS.

In the first place, make up your mind to accomplish whatever you undertake; decide upon some particular employment, and persevere in it. All difficulties are overcome by diligence and assiduity. Be not afraid to work with your own hands, and diligently too. "A cat in gloves catches no mice." Attend to your own business, and never trust it to another. "A pot that belongs to another is ill stirred and worse boiled." Be frugal. "That which will not make a pot will make a pot-lid." Be abstemious. "Who dainties love shall beggars prove." Arise early. "The sleeping fox catches no poultry."

Treat every one with respect and civility. "Everything is gained and nothing lost by courtesy." "Good manners insure success." Never anticipate wealth from any other source than labor. "He who waits for dead men's shoes may have to go a long time barefoot." And above all, "*Nil desperandum*," for "Heaven helps those who help themselves." If you implicitly follow these precepts, nothing can hinder you from accumulating.

BUSINESS RULES.

An Eastern paper gives the following seasonable and excellent rules for young men commencing business :

The world estimates men by their success in life, and, by general consent, success is evidence of superiority.

Never under any circumstances assume a responsibility you can avoid consistently with your duty to yourself and others.

Base all your actions upon a principle of right ; preserve your integrity of character, and in doing this never reckon on the cost.

Remember that self-interest is more likely to warp your judgment than all other circumstances combined ; therefore, look well to your duty when your interest is concerned.

Never make money at the expense of your reputation.

Be neither lavish nor niggardly ; of the two, avoid the latter. A mean man is universally despised, but public favor is a stepping-stone to preferment ; therefore generous feelings should be cultivated.

Say but little, think much and do more.

Let your expenses be such as to leave a balance in your pocket. Ready money is a friend in need.

Keep clear of the law ; for, even if you gain your case, you are generally a loser.

Avoid borrowing and lending.

Wine drinking and smoking cigars are bad habits ; they impair the mind and pocket, and lead to a waste of time.

Never relate your misfortune, and never grieve over what you can not prevent.

ROTHSCHILD'S RULES.

The founder of the celebrated house of the Rothschilds is said to have ascribed his success to a strict adherence to the following rules :

1. I combined three profits ; I made the manufacturer my custom-

er, and the one I bought of my customer; that is, I supplied the manufacturer with the raw material and dyes, on each of which I made a profit, and took his manufactured goods, which I sold at a profit; and thus combined three profits.

2. Make a bargain at once. Be an off-handed man.

3. *Never have anything to do with an unlucky man or place.* I have seen, said he, many clever men who had not shoes to their feet. I never act with them; their advice sounds very well, but fate is against them. They can not get on themselves; how can they do good to me?

4. *Be cautious and bold.* It requires a great deal of boldness and a great deal of caution to make a great fortune; and when you have got it, it requires ten times as much wit to keep it.

RICARDO'S RULES.

David Ricardo, the distinguished writer on political economy, used to press on his friends the observance of the following laconic rules:

1. Never refuse an option when you can get it.
2. Cut short your losses.
3. Let your profits run on.

M'DONOUGH'S RULES.

Upon the tomb of John McDonough, the New Orleans millionaire, are engraved the following maxims, which he had made the rules for his guidance through life, and to which his success is mainly attributable:

1. Remember always that labor is one of the conditions of our existence.
2. Time is gold; throw not one minute away, but place each one to account.
3. Do unto all men as you would be done by.
4. Never put off till to-morrow what you can do to-day.
5. Never bid another to do what you can do yourself.
6. Never covet what is not your own.
7. Never think any matter so trifling as not to deserve notice.
8. Never give out that which does not first come in.
9. Never spend but to produce.
10. Let the greatest order regulate the transactions of your life.
11. Study in your course of life to do the greatest amount of good.
12. Deprive yourself of nothing necessary to your comfort, but live in an honorable simplicity and frugality.
13. Labor, then, to the last moment of your existence.

THE MOTTO OF HON. JOHN FREEDLEY.

It was *self-dependence, self-reliance*. He says, it is a mistaken notion that capital alone is necessary to success in business. If a man has head and hands suited to his business, it will soon procure him capital. My observations through life satisfy me that at least nine-tenths of those most successful in business start in life without any reliance except their own head and hands—hoe their own row from the jump.

AMOS LAWRENCE'S MAXIMS.

He says, I have had these mentors before me: Do what you undertake thoroughly. Be faithful in all accepted trusts.

I am satisfied they have served me well *three score* years.

LETTER FROM JOHN RANDOLPH.

The following interesting letter is from John Randolph, of Roanoke, written to John Randolph Bryant, who married his favorite niece. It was written from England a short time before Randolph's death :

LONDON, December 28, 1830.

My Dear Godson :—Although I have so lately written to your better half, and at such tedious length, too, yet I cannot refrain from the attempt to engraft an old head upon young shoulders, notwithstanding my belief that no man was the wiser for another's experience. There are too many who are unable to profit by their own. Witness the gambler and the spendthrift, not to mention another class of victims of licentious propensities matured into habitual indulgence. Each of these wretched votaries of his darling vice, is more sensible of the ruinous effects of his folly than any preacher who exhorts him against the consequences. He that wears the chain best knows how and where the fetter galls. They that declaim against the fixed and rooted ill-habits of their neighbor, under the expectation of reforming him, only show that they themselves are coxcombs. Rather sententious and flat this, you will say, and you will say the truth.

Having established yourself in Gloucester, let me remind you "not to put off until to-morrow what may be done to-day," and to leave until next year what could be done this. (1831.) Plant all sorts of

trees. Man and boy I knew John Lewis for some forty years or so, although I never was in his house. It may be probable he has saved you the trouble of rearing orchards. But, be that as it may, fail not to have a good apple orchard, especially, and banish ardent spirits as a beverage from your table. * * * If, at the beginning, you are obliged to resort to spirits, let your wife make punch or toddy by measure, of a certain strength never to be increased, according to the good old Virginia fashion.

2. Have no dealing that can possibly be avoided with your neighbors. The disregard of this caution will certainly lead to squabbles and strife.

3. Take no receipt on loose pieces of paper. Carry a receipt book in your pocket, and take all receipts in it; if you are afraid of losing it, keep it in your desk. Always have the receipts witnessed when practicable.

4. Copy, or have copied, all your bills in a book, so that you may at a glance see the cost of any article or branch of expense. Without accurate accounts you must first fall behind hand. What voyage would a ship make without observation or reckoning? You are now embarked on a voyage of life; without a good look-out you may be cast away.

5. Form no intimacies with your neighbors under a seven year acquaintance. The rigid observance of my own maxims did not prevent ill blood between some of my neighbors and myself. My maxims preserved me from strife, and from loss by those. With the rest I was on the best of terms.

6. Economy, the adapting of your supplies judiciously to their intended end. This is a gift of God. It cannot be taught, at least. I have tried to learn it all my life, without success. My mother had it in perfection.

7. Frugality—It is in the power of every honest man, who means to retain his honesty, to refrain from indulging in expenses which he cannot afford. A disregard of this maxim, the result of their ignorant indolence of their own affairs, has ruined all my name and race; they did not know what they could afford, and some, I fear, did not care.

I shall send you some acorns of an oak from Turkey, and also a few English. Plant them in beds, keep clean and transplant at eighteen inches or two feet high. I hope that you will not forget broad nuts, English walnuts, filberts, hazel nuts and chestnuts.

I shall probably never see you and my darling niece succeed as

housekeepers. Daily and every day I find that I am sinking. To be laid by the side of my honored parents at Old Matoax, is now the only wish that I have personally to myself. No tomb stone, no monument for me. Let "spring with her dewy fingers cold," dress the turf that shall cover my no longer feverish head or throbbing heart. If there be any memorial of me, let it be a plain headstone, with this inscription: "John Randolph, of Roanoke, son of John Randolph, of Roanoke, the elder, and Frances Bland, his wife, of Virginia; born June 2d, 1773, died, ———, 1831." Beyond this last period I feel that it is impossible, almost a miracle, for my existence to be prolonged. "Thy will be done."

Adieu, my children.

J. R., of Roanoke.

To John Randolph Bryant, Esq.

MORE MAXIMS.

Never taste an atom when not hungry; it is suicidal. Never hire servants who go in pairs, as sisters, cousins, or anything else. Never speak of your father as "the old man." Never reply to the epithet of a drunkard, a fool, or a felon. Never speak contemptuously of womankind. Never abuse one who was once your bosom friend, however bitter now. Never smile at the expense of your religion or your Bible. Never stand on the corner of a street. Never insult poverty. Never eat between meals.

COUNSELS.

He who will take no advice, but be always his own counselor, shall be sure to have a fool for his client. Good counsel is cast away by the arrogant, the self-conceited, and the stupid; who are either too proud to take it, or too heavy to understand it. Some folks are silly enough to disregard all good advice, unless he who gives it lives fully up to his own precepts. This is just about as wise as it would be in a traveler to scorn the directions of a finger-post, unless it drew its one leg out of the ground and hopped after its own finger.

When we commend good and noble actions, we make them in some measure our own. Doing justice to worthy qualities, is at least a credit to our judgment. Those are presumed to be the best counsels, which come from them that advise against their own interest. Don't force a man to take your advice. You can advise him to take a bath without pitching him into the river. Advice, like snow, the softer it

falls the longer it dwells upon, and the deeper it sinks into, the mind. Men must be taught as if you taught them not.

Eat, digest; read, remember; earn, save; love, and be beloved. If the above rules are strictly followed out, health, wealth, intelligence and true happiness will be the result. Rely on yourself. Shun vice. Go not to sleep in malice. Take care lest thou lose. Do well, but boast not. Govern thy passions. Resolve to be virtuous. Be cheerful. Try to better your condition. Hate nothing but what is dishonest; fear nothing but what is ignoble; and love nothing but what is just and honorable. Hear no ill of a friend, nor speak any of an enemy; believe not all you hear, and appear what you are. Keep out of debt—out of quarrels—out of law—out of politics—out of idleness—out of thin-soled shoes—out of damp clothes—out of reach of brandy and water—out of public office—out of matrimony, unless you are in love. There were three good lessons which the bird in the fable gave the fowler for his release: Not to lose a certainty for an uncertainty; not to give credit to things beyond probability; nor to grieve for that which is past remedy. Do nothing shameful, either in the presence of others or alone. Respect yourself, and others will respect you. Above all things, reverence thyself. Live peaceably with all men, and have but one counselor among a thousand. Let not sleep fall upon thy eyes till thou hast twice reviewed the transactions of the past day. Where have I turned aside from rectitude? What have I been doing? What have I left undone which I ought to have done? Begin thus from the first act and proceed; and, in conclusion, at the ill which thou hast done be troubled, and rejoice for the good.

BUSINESS.

EVERY human being has duties to be performed, and, therefore, has need of cultivating the capacity for doing them; whether the sphere of action be the management of a household, the conduct of a trade or profession, or the government of a nation.

Attention, application, accuracy, method, punctuality, and dispatch are the principal qualities required for the efficient conduct of business of any sort. These, at first sight, may appear to be small matters; and yet they are of essential importance to human happiness, well-being and usefulness. Says Solomon, "Seest thou a man diligent in his business? he shall stand before kings." "That man is

but of the lower part of the world that is not brought up to business and affairs." "He that would be sure to have his business well done, must either do it himself or see to the doing of it." "The man who neglects his business will soon be without business." "Call on a business man in business hours, only on business; transact your business, and then go about your business, in order to give him time to finish his business."

HONOR YOUR BUSINESS.

Henry Ward Beecher, in one of his New York *Ledger* articles, says: It is a good sign when a man is proud of his work, or his calling. Yet nothing is more common than to hear men finding fault constantly with their particular business, and deeming themselves unfortunate because fastened to it by the necessity of gaining a livelihood. In this spirit men fret, and laboriously destroy all their comfort in work. Or they change their business, and go on miserably shifting from one thing to another, till the grave or the poor-house gives them a fast gripe.

But while, occasionally, a man fails in life because he is not in the place fitted for his peculiar talent, it happens ten times oftener that failure results from neglect and even contempt of an honest business. A man should put his heart into everything that he does. There is not a profession in the world that has not its peculiar cares and vexations. No man will escape annoyance by changing business. No mechanical business is altogether agreeable. Commerce, in its endless varieties, is affected like all other human pursuits, with trials, unwelcome duties, and spirit-tiring necessities. It is the very wantonness of folly for a man to search out the frets and burdens of his calling, and give his mind every day to a consideration of them. They belong to human life. They are inevitable. Brooding, then, only gives them strength.

On the other hand, a man has a power given him to shed beauty and pleasure upon the homeliest toil if he is wise. Let a man adopt his business, and identify it with his life, and cover it with pleasant associations. For God has given us imagination not alone to make some men poets, but to enable all men to beautify homely things. Heart varnish will cover up innumerable evils and defects. Look at the good things. Accept your lot as a man does a piece of rugged ground, and begin to get out the rocks and roots, to deepen and mellow the soil, to enrich and plant it. There is something in the most

forbidding avocation around which a man may twine pleasant fancies, out of which he may develop an honest pride.

We met, not long since, a fine specimen of just the thing we mean. He began life a blacksmith. "I never wanted to be anything else than a mechanic," said he. He determined to be respectable and honorable, not in spite of his business, but by means of it. He entered with heart and soul and ambition into it. Little by little he improved it. Selecting a single line of articles, he began manufacturing them. "When I first entered the market," said he, "I found everybody trying to sell cheaper than his neighbor, and so making poorer and poorer articles, and running down the trade. I determined that I would not *undersell*, but *excel*.

In this spirit he entered heartily into his work, was proud of it, nursed and nourished it, and now he is, in his own department, almost without a competitor in the market. He has gathered riches, which he employs benevolently, and is respected and honored by all his townsmen. The good which this honest mechanic has done will not stop with himself. He will have made his business honorable to others. A man can impart to a business a flavor of honor by his own conduct, which shall make it thereafter more creditable to any one who enters it. Franklin left upon the printing office an impress which has benefited the profession of printers ever since. Blacksmiths love to speak of the yet uncanonized name of St. Elihu Burritt.

Mr. Dowse, by tanning and currying, amassed a fortune, and bequeathed it and its literary products to the public in Boston and Cambridge; and we venture to say, that hereafter that business will be easier and more encouraging to every lad that is bound apprentice to the nasty trade. Once let a man convert his business into an instrument of honor, benevolence and patriotism, and from that moment it is transfigured, and men judge its dignity and merit, not by what it externally is, but by what it has done and can do. It is better to stick to your business, and by patient industry and honorable enterprise crown it with honor, than to run away from it, and seek prosperity ready made to your hand. It is not what a man *finds* that does him good, but what he *does*.

COMMERCE.

A man ceases to be a savage when you can awaken in him a desire to buy and sell. A strong taste for commerce leads by the shortest road to civilization. The spirit of modern times is commercial. Com-

merce is a great divine instrumentality in civilizing and Christianizing the world. Comprehensively regarded, it may be said to be a Christian agency. As a general tendency, it is doing more good to the world than we can calculate or imagine. And yet those that are conducting the commerce of the world are, to a very great extent, in their private and special operations respecting it, oppressors. For the first contact of the commercial spirit is apt to produce oppression.

SPECULATION.

"Take heed that thou enter not into reckless speculation." Never take great hazards. Such hazards are seldom well balanced by the prospects of profit; and if they were, the habit of mind which is induced is unfavorable, and generally the result is bad. To keep what you have, should be the first rule; to get what you can fairly, the second.

Financeiring is a deep game, and he who leaves an honest toil in a business that he does understand, for calculations of chance in matters where he has no skill, is very apt to become the loser; and, as in all lotteries, to grow desperate in the attempt to make up his losses. We do not speak of investments in stocks, &c., as property, but of the spirit of speculation; and we have no doubt that a just verdict upon many cases of fraud would be, "This man lost his capital and his character by speculation in stocks." Keep therefore to honest toil in a legitimate business, and do not aspire to become a financier. "Be content with such things as ye have?"

It is never wise to let extraneous considerations countervail the natural laws of trade.

PURCHASES.

Make it a rule through your life, says Rev. Joseph Jones, to never buy what the people do not want. Buy that which is desired by all, and you will never have any difficulty in realizing your money again when you may want it. Do not purchase undesirable property because it is cheap.

An old Philosopher and Naturalist has handed down to us some facts which are simple and easily understood, but are little practiced in every day's transactions:

1st. When any article or commodity demands a high price, more than it is worth, never invest your money in it for speculation, unless

you know where to sell it at once at a higher figure. Experience has shown that seven-tenths of all such investments have proven a failure in one hundred years together.

2d. When an article or commodity falls far below its ordinary price or real value, invest all your capital in it, when prices are at their minimum, or as near it as possible, for nine times out of ten, all such investments have been profitable, for the last century.

It is an old saying, that he who buys by the penny, keeps his own house and other men's too.

When articles rise, the consumer is the first that suffers, and when they fall, he is the last that gains.

CONTRACTS.

For everything you buy or sell, lend or hire, make an exact bargain at first, and do not be put off to an hereafter by one who says to you, "We shall not disagree about trifles." I have often met with men who appeared reluctant to make a previous bargain, remarking, "O, we shall not disagree about trifles!" I have invariably found such persons exorbitant, and often dishonest. The remark really meant, "As *you* wont disagree about a trifle, I shall have a good chance to shave you!"

It is a universally acknowledged maxim, that as soon as one contracting party departs from the condition of his engagement, the other is no longer bound by his.

SETTLEMENTS.

Says Lawrence, the millionaire merchant of Boston: "During the first seven years of my business, I never allowed a bill against me to stand unsettled over the Sabbath. If the purchase of goods was made at auction on Saturday, and delivered to me, I always examined and settled the bill by note or credit, so that in case I was not on duty on Monday, there would be no trouble for the boys; thus keeping my business *before* me, instead of allowing it to drive me."

MODEL MANNER OF SETTLING AN ESTATE.

Seth Thomas, of Plymouth Hollow, Connecticut, left at the time of his decease, in 1858, property worth from \$400,000 to \$600,000, and six children who were his heirs. There was no will, and the estate

descended in a legal manner to the children equally. They consulted no lawyers, began no scramble, but mutually agreed upon two judicious men, and employed them to divide the property into six portions as nearly equal in value as could be. This done the portions were put up at auction among them, each buying a portion, and the premiums again were equally divided. In this way the lawyers got no fees, the community no scandal, the peace of the family circle was preserved, and an end arrived at which gratifies every pure sentiment.

ENDORSING.

If you want to avoid being drawn into the common vortex of financial ruin by friends and relations, as dishonest in reality as they are reckless, never endorse for a dime without your wife's written consent. Or read daily the fifteenth verse of the eleventh chapter of Proverbs.

DUNNING.

No man should be delicate about asking for what is properly due him. If he neglect doing so he is deficient in the spirit of independence which he should observe in all his actions. Rights, if not granted, should be demanded. The selfish world is little inclined to give one his own unless he have the manliness to claim it.

PROPERTY.

The advantages of the acquisition of property are two-fold; they are not merely to be estimated by the pecuniary profit produced, but by the superior tone of industry and economy which the possessor unconsciously acquires. When a man is able to call *his own* that which he has obtained by his own well-directed exertion, this power at once causes him to feel raised in the scale of being, and endows him with the capacity of enlarging the stock of his possessions. A cottager having a garden, a cow, or even a pig, is much more likely to be an industrious member of society than one who has nothing in which he can take an interest during his hours of relaxation, and who feels he is of no consequence because he has nothing which he can call *his own*. The impressions which have been produced upon the minds of the peasantry, by affording them the means of acquiring property and of possessing objects of care and industry, are great, unqualified,

and unvaried. In every instance the cottager has been rendered more industrious, the wife more active and managing, the children better educated and more fitted for their station in life.

TO PURCHASERS OF REAL ESTATE.

Do not pay for property until you are certain that the title is without a flaw. Do not trust to "honor," "friendship," or anything but the records. Have the title searched by your own lawyer and not by the seller's or else by both of them. Before buying see

1. That the seller has a connected chain of title;
2. That no dower interests are outstanding;
3. Nor mortgages;
4. Nor mechanic's liens;
5. If property has ever been sold at Sheriff's, Executor's, Administrator's or Guardian's sale, see that the proceedings were regular;
6. If ever devised by will, see that will was duly probated;
7. See that there are no liens from taxes or tax sales, either county or city;
8. That there are no liens from judgments by the courts of this State;
9. Nor from judgments rendered in the United States Circuit Court.

HOW TO OBTAIN A PENSION.

In obtaining a pension the steps are simple: First, the declaration with two witnesses is made before any court of record, or an officer representing it; second, the certificate of two surgeons as to the injury received or disease contracted and the degree of disability is necessary; third, the certificate of a commissioned officer having knowledge of the facts, stating time, place and facts.

SENDING MONEY BY MAIL.

Holbrook's *Mail* says that it is very essential that parties enclosing bank notes in letters, for transmission in the mail, should be particular in retaining the number, letter and date of each bill. If lost or stolen this will aid materially in tracing out the robbery and in the return of the property to the rightful owner, provided it is recovered in whole or in part. It is not enough to be able to say that the notes posted were of particular denominations and on certain banks. Such

identification is not sufficient to authorize the restoration, if found. The practice of retaining a pretty full description would, if generally followed, tend greatly to prevent depredations, and aid materially in conviction where robberies are committed and detected.

TO FIND LOST BANK NOTES.

Bank notes when dropped are apt to be carried away from the spot by the wind. They are sometimes recovered by dropping a piece of thin paper in the same place where the note was lost and watching the course it takes.

BUILDINGS AND BUILDING MATERIALS.

THE HOUSES WE LIVE IN.

SOME one has said, I will tell you the character of the man, if you will show me the house he lives in. The dwellings of the people are the indices of their character and civilization. The airy, sunny, roving, free Arab of the desert lives in a tent, as have his fathers, from the day that Ishmael went forth from the family of Abraham. The North American Indian lives in his wigwam of poles and skins, or bark. The Esquimaux burrows in his hut of snow, or tent of seal skin. The Hottentot builds of mud. The wild Tartar hordes have their light villages on wheels. The houses of the Chinese and Japanese are perfectly expressive of their characters. So were those of the ancient Egyptians, Greeks and Romans. Every people writes its character in its architecture; and the various classes of every people and every individual who builds or selects a dwelling, makes it expressive of his character and condition.

Here the rough backwoodsman builds his log cabin. The thrifty farmer puts up a house of frame and clapboards, lath and plaster. A solid and assured prosperity intrenches itself in brick or stone.

In our cities, the old aristocratic families like spacious double houses, with plenty of room about them; while the newer aspirants of fashion prefer the narrow, five-story, brown-stone fronts. Struggling gentility contents itself with the narrowest of possible edifices, or puts up with a divided domicil to save rent. The poor do what

they can, but still manage to make characteristic selections. Some burrow in cellars—some roost in attics.

The national character comes out in its great hotels, its showy villages, its hasty, ambitious and sham decorations. The Americans paint old houses to look like new. The Italians, on the contrary, paint new buildings so as to give them the air of the antiquities and ruins. The American would like everything about him to look as if it were finished yesterday. He does not care much if it be unfinished, so that it is spick and span new. The ancient, the venerable has no charms for him. A place which has that air of age and ripeness, which would give it a double charm to a European, makes it frightful to the American, and he either sets to repairing and painting, to make it look like new, or sells it and builds another.

So much for the aspect and character of the houses we live in. Something now of their uses and adaptedness for human dwellings.

When Methuselah had lived in a tent five hundred years, he was told to arise and build him a house. He said that he had done very well in a tent so far, and that for the little time he had left, it was not worth while to build a house; so he lived on in his tent nearly five hundred years longer.

We have talked with men who, in such dry, equable climates as western Texas and New Mexico, have slept out doors for a year or two, and they said that when they came to sleep in a log house, with big cracks between the logs, they had a feeling of suffocation. Persons accustomed to live in tents find closely built houses very uncomfortable. Custom makes very bad conditions bearable, but it does not make them healthful.

As a rule, our houses are tight boxes, which poison us with bad air. Our builders make no more provision for ventilation than if men were not breathing animals, or could do as they thought proper about it. When the joiner has made the doors and windows all snug, and the plasterer has finished the walls and ceiling of a room, how is the foul air to escape, and the fresh air to enter? How are we to get rid of the carbonic acid, or get fresh supplies of oxygen?

Talk of the health of American women! They suffer most, because they stay in-doors most. Is it any wonder that they lose the roses from their cheeks, the brightness from their eyes, the elasticity from their limbs, and vigor and strength from their whole system? Is it any wonder that their hair falls out, or their teeth decay, and their whole nervous system goes to wreck and ruin?

What is it that gives roses to the cheeks? Oxygen. What is it

that gives brightness to the eye? Oxygen. What gives vigor to the whole physical system? Oxygen. And we can get it by breathing fresh, pure air, and in no other way.

Every room in every house ought to be built so as to secure to its inmates a constant supply of pure air. If the architect has neglected this, then the windows should be so made as to let them down from the top. An opening of one inch at the top of a window will ventilate a room better than raising it a foot from the bottom. Unless this is done, the only ventilation we are sure of is from the cracks made by the shrinking of the doors and windows—which is a blessing of unseasoned lumber—or between the floor and mop-board.

A good means of ventilation in summer, as far as it goes, is a stove-pipe hole in the chimney; but it must be left open. A fire-place, also, is of some use; but not if it is closed up with a fire-board. Our fathers, with their big chimneys and roaring wood-fires in winter, and open doors and windows in summer, were far better off than we.

We breathe bad air in our churches, our lecture rooms, our theaters, our schools, our dwellings—but most of all in our sleeping apartments; where we toss, and strangle, and smother, and asphyxiate for the want of an inch of opening at the top of a window.

ARCHITECTURE.

The labors of a few leading architects in this country have resulted in educating and improving the taste of the wealthy and refined proportion of the community up to a point of excellence that speaks well for the future of architectural science. Under their wise and energetic tuition, our metropolitan avenues have become lined with a multiplicity of imposing structures, embodying high conceptions of art, and the banks of the East and Hudson rivers, as well as the beautiful and attractive shores of Staten Island, are adorned with villas and homesteads, surrounded by all the appliances which can be furnished by nature and by art.

The taste which has thus been infused into the wealthy portion of the populace is gradually extending itself into the rural districts, and impressing the farming community with the necessity of consulting the laws of architecture in the erection of their dwellings, so as to combine the two fundamental ideas of the science—use and beauty.

A building erected merely with regard to use and comfort, in utter disregard of ornament and beauty, is a blot upon a landscape.

The strong hold which the soil and the homestead has upon the

affections of Englishmen, is owing to the attractions and graces with which the ancestral dwelling is invested. Attachment to the soil is the result of years spent in the pursuit of agriculture, gardening, and the cultivation of the tasteful and beautiful.

It is an old saying, that "where you see flowers in the garden, a nice housekeeper may be found within."

Our farmers cannot surround themselves with too many of the ornaments and elegancies, as well as the material comforts, of life. The eye and ear need education, as well as the lower sense of taste.

HOW TO SELECT A HOUSE.

A large empty house is only a burden, especially when good servants are scarce, and means limited. If possible, obtain one with a good hall, the principal room opening from it; rooms interfering with others are a great annoyance to housekeepers, as it is impossible to keep a room tidy when used as a thoroughfare by members of the family, without frequent use of broom and duster, which is a constant wear on carpet and patience. The dining room ought either to open out of the kitchen, or to be separated by a hall; each should have a closet opening from them; and the kitchen have a passage to the cellar, and an outside door. The parlor is the most pleasant facing north, and should be independent of the rest of the house. The nursery is most convenient on the principal floor. Small bedrooms are preferable with closets to large ones without. Spring and rain water should be near the kitchen. Furniture appears well in small, that would hardly be called respectable in large, rooms.

THE DISADVANTAGES OF A LARGE HOUSE.

Says a recent English writer: Do you think that a rich man, sitting in his sumptuous library, all oak, and Morocco-glittering backs of splendid volumes, lounges and sofas of every degree, which he merely paid for, has half the enjoyment that Robinson Crusoe had when he looked around his cave, with its rude shelves and bulkheads, its clumsy arm-chair and its pottery, all contrived and made by his own hands? Now, the poor cottager has a good deal of the Robsison Crusoe enjoyment; something of the pleasure Sanford and Merton felt when they had built and thatched their house, and then sat within it, gravely proud and happy, while the pelting shower came down, but could not reach them. When a man gets the length of considering

the architectural character of his house, the imposing effect which the great entrance-hall has upon visitors, the vista of drawing-room retiring within drawing-room, he loses the relish which accompanies the original idea of a house, as something which is to keep us snug and warm from wind and rain and cold. So, if you gain something by having a grand house, you lose something, too, and something which is the more constantly felt—you lose the joy of simple tidiness, and your life grows so artificial that many days you never think of your dwelling. The master of a magnificent and splendidly furnished mansion should take care that he be not the one thing little amidst everything else that is great.

BUILDING HOUSES.

Convenient arrangement, durability of material and facility of repair, adequate ventilation, warmth in winter, and congruity of surrounding objects are among the important requisites in a house. Says a correspondent of the *American Agriculturist*, two-story houses, and square houses are cheapest. Carpets are made a yard wide, and nine-tenths of the carpets are made so as to require cutting by the yard to make them match, hence the measure of every room and hall should be the exact multiple of a yard, both to save trouble and expense. If a room must go beyond twelve or fifteen or eighteen feet, and can not reach the next multiple above it, make it half a yard. A great variety of carpets can be cut by the half yard.

LIGHT AND SUNSHINE—LIGHTING A HOUSE.

Mrs. Stowe, in one of her papers, says: Our house shall be set on a southeast line, so that there shall not be a sunless room in it, and windows shall be so arranged that it can be traversed and transpierced through and through with those bright shafts of life which come straight from God.

Says Dr. Hall: Chambers should not only be constructed with a view to a constant, thorough, and unpreventable ventilation, but also with an eye to their perfect dryness and their free exposure to the sun for the greater portion of each day.

A dark house, says Florence Nightingale, is always an unhealthy house, always an ill-aired house, always a dirty house. Want of light steps growth and promotes scrofula, rickets, &c., among children. People lose their health in a dark house, and if they get ill, they can

not get well again in it. Three out of many negligences and ignorances in managing the health of houses generally I will here mention as specimens. First, that the female head in charge of any building does not think it necessary to visit every hole and corner of it every day. How can she expect that those under her will be more careful to maintain her house in a healthy condition than she who is in charge of it? Second, that it is not considered essential to air, to sun and clean rooms while uninhabited, which is simply ignoring the first elementary notion of sanitary things, and laying the ground for all kinds of diseases. Third, that one window is considered enough to air a room. Don't imagine that if you who are in charge don't look after all these things yourself, those under you will be more careful than you are. It appears as if the part of the mistress was to complain of her servants and accept their excuses, not to show them how there need be neither complaints nor excuses made.

Dr. Moore, the metaphysician, thus speaks of the effect of light on body and mind: A tadpole confined in darkness would never become a frog, and an infant being deprived of heaven's free light, will only grow into a shapeless idiot, instead of a beautiful and responsible being. Hence, in the deep, dark gorges and ravines of the Swiss valleys, where the direct sunshine never reaches, the hideous prevalence of idiocy startles the traveler. It is a strange melancholy idiocy; many people are incapable of any articulate speech; some are deaf, some are blind, some labor under all these privations, and are misshapen in almost every part of the body.

I believe there is in all places a marked difference in the healthiness of houses, according to their aspect with regard to the sun, and those are decidedly the healthiest, other things being equal, in which all the rooms are, during some part of the day, fully exposed to the direct light. Epidemics attack inhabitants on the shady side of the street, and totally exempt those on the other side; and even in epidemics such as ague the morbid influence is often thus partial in its labors.

All persons of cultivation and refinement must instinctively shrink from cooking in the dark. Hence, it should be arranged that this department should have all the daylight possible, and also that the "back-yard," as it is called, and which is usually in the rear of the kitchen should have the advantage of abundant sunshine, so as to keep it dry and healthful.

Light is just as essential to a child as to a plant. When the latter is kept in the dark, it loses its shape, flavor, and color—becomes etio-

lated or blanched, slender and weak. Deprivation of light has a similar effect on the human frame, and is naturally more marked and more disastrous in childhood than in maturity.

Light, says the *Builder*, well diffused over all parts of a dwelling, is essential to its being healthy; a dark house is not only gloomy and dispiriting, but is always unhealthy. We know, on high medical authority, that the amount of diseases in light rooms, as compared with dark ones, is vastly less. Light ought to be diffused over the whole dwelling, so that no dark corners be left.

A New York merchant noticed, in the progress of years, that each successive book-keeper gradually lost his health, and finally died of consumption, however vigorous and robust he was on entering his service. At length it occurred to him that a little rear room where the books were kept, opened in a back yard, so surrounded by high walls, that no sunshine came into it from one year's end to the other. An upper room well lighted was immediately prepared, and his clerks had uniform good health ever after.

A familiar case to general readers is derived from medical works, where an entire English family became ill, and all remedies seemed to fail of their usual results, when accidentally a window glass of the family room was broken, in cold weather. It was not repaired, and forthwith there was a marked improvement in the health of the inmates. The physician at once traced the connexion, discontinued his medicines, and ordered that the window-pane should not be replaced.

A French lady became ill. The most eminent physicians of her time were called in, but failed to restore her. At length Dupeyren, the Napoleon of physic, was consulted. He noticed that she lived in a dim room, into which the sun never shone; the house being situated in one of the narrow streets, or rather lanes of Paris. He at once ordered more air and cheerful apartments, and all her complaints vanished.

The lungs of a dog become tuberculated (consumptive) in a few weeks, if confined in a dark cellar. The most common plant grows spindly, pale and straggling, if no sunlight fall upon it. The greatest medical names in France, of the last century, regarded sunshine and pure air as equal agents in restoring and maintaining health.

For these facts, which cannot be disputed, the most common mind should conclude that cellars and rooms on the northern side of buildings, or apartments into which the sun does not immediately shine, should never be occupied as family rooms or chambers, or as libraries or 'studies.' Such apartments are only fit for stowage, or pur-

poses which never require persons to remain in them over a few minutes at a time.

Sunshine, heat, air, water, food and exercise are the chief necessities of life. Many young ladies of the present day do not present the mixture of the rose and lily in their complexion that their mothers were remarkable for. Is not this attributed, in some measure, to 'closing the blinds,' and keeping out the sunshine. The appearance of health, with shame be it acknowledged, is now-a-days by some young ladies considered ungenteel. What nonsense to raise violets in a cellar! Let us have plenty of sunshine! The direct sunlight is as indispensable as pure air. There can be no real health in habitual absence of the one more than of the other.

MORE LIGHT—A TRAP TO CATCH A SUNBEAM.

The first fiat of the Creator was "Let there be light;" and from that hour to this mankind struggle and pray for it, and pine away when deprived of its genial life-giving rays. In too many of the homes of the land sunbeams are as rigidly excluded as if they carried some death-dealing miasma or subtle poison, instead of bearing, as they do, balm and healing to every house. Dark corners and close little rooms abound, from which every beam is shut out; and human beings wilt in such places as surely as a plant will under similar conditions. A very simple way to obviate such troubles is to erect reflectors to throw in light obliquely where it cannot enter directly.

Procure a small iron rod, say half an inch in diameter and three feet long, and fasten it to the side of a window-frame by suitable brackets, so that it will turn easily like a blind; to this rod rivet flat bars of hoop iron, two feet long, at right angles with it. Over this frame-work stretch a white cotton cloth, and the reflector is ready for use. It is easy to see that any side light striking upon this cloth will be reflected into the apartment where it is erected, with an intensity varying according to the angle it is fixed at. If tin be substituted for cloth, the improvement will be very great. If the apartment is more easily lighted from above, the reflector must be fastened over the top. Reflectors are used in many places in large cities.

THE EFFECT OF COLOR UPON HEALTH.

A correspondent of the London *Builder* gives us this very important information: From several years' observations in rooms of vari

ous sizes used as manufacturing rooms, and occupied by females for twelve hours per day, I found that the workers who occupied those rooms which had large panes of glass in the four sides of the room, so that the sun's rays penetrated through the room during the whole day were much more healthy than the workers who occupied rooms lighted from one side only, or rooms lighted through very small panes of glass. I observed another very singular fact, viz: that the workers who occupied one room were very cheerful and healthy, while the occupiers of another similar room, who were employed on the same kind of work, were all inclined to melancholy, and complained of pain in the forehead and eyes, and were often ill and unable to work. Upon examining the rooms in question, I found they were both equally well ventilated and lighted. I could not discover anything about the drainage of the premises that could affect the one room more than the other; but I observed that the room occupied by the cheerful workers was wholly white-washed, and the room occupied by the melancholy workers, was colored with *yellow ocher*. I had the yellow ocher washed off, and the walls and ceilings white-washed. The workers ever after felt more cheerful and healthy. After making this discovery, I extended my observations to a number of smaller rooms and garrets, and found, without exception, that the occupiers of the white rooms were much more healthy than the occupiers of the yellow or buff-colored rooms; and wherever I succeeded in inducing the occupiers of the yellow rooms to change the color for white-wash, I always found a corresponding improvement in the health and spirits of the occupiers.

VENTILATION.

Neither men, nor animals, nor vegetables, can live, if the air which surrounds them is not constantly renewed. No air is fit to breathe which has been expelled from the lungs, until it is purified by fresh intermixture with the atmospheric air. The *Police Tribune* says: "Pure air plays a more important part than old fogies imagine. Nearly all our fighting is done in houses where a short supply of oxygen is compensated by an over supply of gin and water. The less pure air, the sooner we become irritable. Irritation leads to quarrels and quarrels to plug-musses, station houses and broken heads. Insufficient ventilation is very often the cause of the most wanton injustice. Children at school "can't cypher" in the afternoon. They become dull, stupid, and listless. In consequence of this they can't tell alge-

bra from Yankee Doodle. The teacher looks upon this as the effect of stubbornness, and rushes for his rattan. The boys get a whaling, when all they required was a few quarts of pure air. Instead of raising their ferules, teachers should first try the effect of raising a window. Dr. Griscom says there is not one well ventilated school house in this state." Horace Mann remarks: "To put children on a short allowance of fresh air, is as foolish as it would have been for Noah, during the deluge, to have put his family on a short allowance of water. Since God has poured out an atmosphere fifty miles deep, it is enough to make a miser weep to see our children stinted in breath."

Hundreds of little boys and girls are confined in close rooms for three hours at a time, breathing over and over again the same air, constantly diminishing its oxygen, which is the supporter of life, thus reducing the force of the vital functions; while at the same time the brain, that inevitably shares the enervating influence, is stimulated by the most exciting ambition to exertions too great for even its undiminished strength. By this course, hundreds of helpless children, each the pride and joy of its home, have been doomed to lingering disease and early death.

In our churches the congregations generally have air the forenoon which is quite tolerable, but in the afternoon their consciences and good manners are subjected to a constant strain in efforts to resist the stupefying effects of the noxious gases with which the church has become filled during the morning service. Commonly in the churches, after the morning services are over, every door and window is shut, and the careful sexton keeps them shut till night. The consequence is, the air is dead and putrid, and everybody is drowsy. If the weather is cold, and fires are needed, some of the upper sash ought to be so fixed as to permit ventilation to go on, especially if the house is very close. But in all weather, the instant a congregation leaves the house the windows should be raised, and a complete ventilation accomplished. This is important to devotion and to health. If sextons will not heed this obvious suggestion of common sense, then the official or private members of the church ought to remind them of it and enforce it.

The great mass of the inhabitants of the northern United States live in better houses, wear better clothes, and eat better food than the mass of any other nation, but it is said they breathe the worst air of any people in the world. There is no necessity for breathing poisonous gases. We are placed in a great ocean of air, which has been prepared by nature in just the proper proportions of oxygen, nitrogen

and watery vapor, to adapt it to the structure of our lungs and the healthful action of all our organs. We know that by breathing constantly this atmosphere, taking a fresh and pure supply at every breath, our physical system will attain to the highest degree of health and strength of which it is capable.

If a little more oxygen were added to the atmosphere we breathe, says Dr. Hall, in his *Journal of Health*, the very first match that was struck would envelop the world in fire in an instant of time, while if there was a little more nitrogen added to it, all that breathe would suffocate and die within an hour, so easy is it for Omnipotence to wrap the solid globe in flames, or sweep from existence the entire race of animals and man!

It is estimated that ten cubic feet of pure air per minute for the respiration of an adult person is necessary for comfort and safety, and that in a close apartment of only six hundred cubic feet, a single person cannot spend six consecutive hours in air of ordinary temperature without impairment to health.

In New York city, in 1832, the deaths averaged one in thirty-five and a half, while in 1861 they averaged one in twenty-seven and a half. This increase of mortality is due in a measure to over-crowded houses, which have increased in filth, and have become fetid for want of sufficient fresh air. It is the opinion of physicians that the minimum quantity of air space allotted to each person in a bedroom should be five hundred cubic feet—a cube of eight feet space. Less breathing space than this tends to produce disease. There are nearly 300,000 persons in New York who sleep in apartments containing much less space than five hundred cubic feet for each. Although nearly half the population of New York live in tenement buildings, no other city of the same population contains so many occupied by their owners.

There is one tenement house in New York city having sixty-eight rooms, eight by ten feet, containing seventy families of one hundred and forty-four adults, and one hundred and thirty-eight children, eleven dogs, and forty-three cats. It is stated that many of the deaths in New York city are directly traceable to bad-ventilated dwellings and workshops. Half of the children die before the age of eleven, and half the artisans of the city die under the age of twenty-one. Over 34,000 people are probably now living in cellars in this city.

The recent investigations of circumstances affecting the health of the masses have caused the importance of pure air and light to be

more generally understood now than it was before. The simple fact set forth by Dr. Arnott long ago, that a canary bird suspended near the top of a curtained bedstead in which people are sleeping will generally be found dead in the morning, should have been sufficient to show the danger of breathing a vitiated medium, and the necessity for providing a constant and ample supply of fresh air in our dwellings. Impure air, however, cannot be seen; its effects are not immediate; and so it has been allowed quietly to kill its thousands annually, and to lay the seeds of disease in other thousands ready to be developed by assisting circumstances, without an effort to stay its ravages, and almost without a knowledge of its agency. A healthy man respires about twenty times in a minute, and inhales in that period about seven hundred cubic inches of air. Fresh air contains twenty-three per cent. of oxygen, and one and a half per cent. of carbonic acid; by the process of respiration the oxygen is reduced to eleven per cent., and the carbonic acid is increased to rather more than eight per cent. Three and a half per cent. of this gas render air unfit to support life; so that a man respiring seven hundred cubic inches in a minute, vitiates about sixteen hundred and thirty cubic inches, (to say nothing of the effect produced by the exhalation from the skin;) and this will serve to give some notion of the large quantity of air required for the healthful occupation of a building by a number of persons, and especially of sleeping rooms.

We take the following from the *American Agriculturist*: "If two persons are to occupy a bedroom during a night let them step upon weighing scales as they retire, and then again in the morning, and they will find their actual weight at least a pound less in the morning. Frequently there will be a loss of two or more pounds, and the average loss throughout the year will be more than one pound. That is, during the night, there is a pound of matter which has gone off from their bodies, partly from the lungs, and partly through the pores of the skin. The escaped material is carbonic acid, and decayed animal matter, or poisonous exhalations. This is diffused through the air in part, and in part absorbed by the bed clothes. If a single ounce of wood or cotton be burned in a room, it will so completely saturate the air with smoke that one can hardly breathe, though there can only be one ounce of foreign matter in the air. If an ounce of cotton be burned every half hour during the night, the air will be kept continually saturated with smoke, unless there be an open door or window for it to escape. Now the sixteen ounces of smoke thus formed is far less poisonous than the sixteen ounces of exhalations from the

lungs and bodies of the two persons who have lost a pound in weight during the eight hours of sleeping, for while the dry smoke is mainly taken into the lungs, the damp odors from the body are absorbed both into the lungs and into the pores of the whole body.

Need more be said to show the importance of having bedrooms well ventilated, and of thoroughly airing the sheets, coverlids, and mattresses in the morning, before packing them up in the form of a neatly made bed ? ”

The condensed air of a crowded room gives a deposit which, if allowed to remain a few days, forms a solid, thick, glutinous mass, having a strong odor of animal matter. If examined by a microscope, it is seen to undergo a remarkable change. First of all, it is converted into a vegetable growth, and this is followed by the production of multitudes of animalcules; a decisive proof that it must contain organic matter, otherwise it could not nourish organic beings.

In sick chambers, hospitals, and sleeping apartments a large supply of fresh air is required; but a strong current should always be avoided. The best way of admitting air into such places is by dividing it into numerous fine streamlets, such as through wire gauze curtains.

Typhoid fevers, says the *Scientific American*, in the camps of armies are principally due to sleeping in close tents, where a sufficient supply of fresh air is not admitted. Soldiers who bivouac in the open air, with the blue canopy of heaven over them for a tent, never take the typhoid fever. Typhus fever first broke out in Europe during the retreat of Napoleon's army from Moscow. It originated in the hospitals, which were filled with the sick and wounded soldiers. These places were not sufficiently ventilated, and the atmosphere in them became fetid; the fever became a plague, and scourged almost every city in the Old World.

The following are a few of the many examples that might be cited to show how horrible may be the effects of a vitiated atmosphere: In the year 1756, during a rebellion in India, one hundred and forty-six persons, chiefly English, Dutch and Portugese soldiers, were imprisoned by the natives in the Black Hole of Calcutta, which was nothing more nor less than a room eighteen feet square, and about sixteen feet high, and furnished with two grated openings on one side for the admission of light and air. During a confinement of twelve hours one hundred and twenty-three perished, and the remainder were subsequently attacked with “putrid fever,” which is said to have proved fatal in most of the cases.

In the year 1797 or '8, during a storm at sea, seventy men, women and children were kept for a short time in the hold of a small vessel, the hatches of which had not only been "laid over," but, for better security, "battened down." The death of the entire number was the result. In December, 1848, also during a storm, one hundred and fifty passengers were enclosed in the same hermetical manner, in the steerage cabin of the steamer "Londonderry," while on its passage from Liverpool to New York. Soon half the number perished by suffocation, and it is very probable that the rest would have speedily met with a similar fate, had it not been for the strength of one man, who succeeded in bursting open the door of the companion-way, although the captain of the steamer had taken especial pains to prevent such an occurrence.

The following are a few examples to illustrate the importance of a thorough system of ventilation in cases where little if any complaint had been previously made of inattention to this higienic measure: There was once in Glasgow an assemblage of buildings attached to a factory, which were occupied by about five hundred persons—one family to each room. There had long been a great deal of sickness in the buildings, which the inmates seemed to regard as a mysterious dispensation of Providence, for they obstinately refused to adopt such sanitary expedients as had been repeatedly advised them. At length, the proprietors of the establishment, despairing of ever making the inmates appreciate the necessity of occasionally opening windows, resolved to apply a system of ventilation which should be thorough, continual, and utterly beyond the control of those subjected to it. They accordingly connected each room, by means of tubes, with the chimney of the factory furnace, and compelled every occupant, whether willing or unwilling, to be exposed daily and nightly to a draft of air. The result was, that sickness of every kind rapidly diminished, and one disease—typhus fever—which had frequently raged as an epidemic, was for eight years scarcely known in the place.

In 1832, at Norwood School, in England, scrofula made its appearance among six hundred children and destroyed a great number of them. The disorder having been attributed to an insufficiency and bad quality of food, a scientific investigation was made, and a decision given that the food was "most abundant and good,"—that "defective ventilation and consequent atmospheric impurity" was the cause of the sickness. A thorough system of ventilation was immediately applied; scrofula rapidly disappeared, nor did it ever recur,

though the number of pupils was gradually increased to eleven hundred.

In a hospital at Dublin, two thousand nine hundred and forty-four deaths took place in four years. A better system of ventilation having been resorted to, as a means of lessening the mortality, it was found that during the next four years, the number of deaths was only two hundred and seventy-nine.

The above facts are merely selected from a long array of similar character, which tend to show the paramount importance of breathing an untainted atmosphere. It is certainly no exaggeration to say that were the public as particular as they should be, and easily might be, about the quality of that subtle fluid, which enters and departs from an average pair of human lungs about a thousand times in an hour, and nearly nine million times in a year, the bills of human mortality would be reduced one-third at least, and the ordinary duration of human life would be nearer seventy than forty.

An intelligent physician writes that there is no more certain method of propagating scarlet fever, and perpetuating consumption in a family, than the practice now adopted by many of keeping a house closed for several weeks or months after a death has occurred in it.

Wire gauze is by some applied to windows in such a manner as to answer the double purpose of ventilation and to keep out insects when the window is open.

Ventilation, in England, is now very much promoted by the use of hollow brick in the walls, which are made to serve as pipes for ventilation.

SIZE AND VENTILATION OF CHAMBERS AND BED ROOMS.

One of the most general and, at the same time, one of the most pernicious errors in modern architecture, especially in the construction of private dwellings, is founded on the mischievous supposition that almost any place is good enough to sleep in. It is common everywhere to set apart the smallest rooms in the house for sleeping apartments. To show what a ruinous mistake this is, let the reader remember that at least one-third of a man's existence is spent in bed in sleep. Eight hours out of every twenty-four we are in our chambers. And when it is considered that air is essential to health, that without it we can not live two minutes, it must be of material importance whether we breathe a pure or impure air for a third of our existence. A full-sized man breathes—takes into his lungs—at each

breath about a pint of air; while in there all the life nutriment is extracted from it, and, on its being sent out of the body, it is so entirely destitute of life-giving power that if rebreathed into the lungs again, without the admixture of any pure air, the individual would suffocate—would die in sixty seconds. As a man breathes about eighteen times in a minute, and a pint at each breath, he consumes over two hogsheads of air every hour, or about sixteen hogsheads during the eight hours of sleep: that is, if a man were put into a room which would hold sixteen hogsheads of air, he would, during eight hours of sleep, extract from it every atom of life-nutrient, and would die at the end of the eight hours, even if each breath could be kept to itself, provided no air came into the room from without. However pure the air of the whole room may be at first, it is to be remembered that it becomes contaminated by the first expiration, hence only the first inspiration is pure, and each one thereafter becomes more and more impure unless there is some ventilating process going on.

Every individual has, in his own experience, demonstrative proof of the impurity of the air of a room in which a person has slept all night by the "closeness" he has observed on entering a sleeping apartment after a morning's walk, and this, even when more or less fresh air has been coming in through the crevices about the doors and windows during the whole night. The most eminent physiologists, at home and abroad, have estimated that no sleeping apartment, even for a single person, should have a floor surface of less than what would equal twelve feet long and twelve feet broad, or one hundred and forty-four square feet, and eight or ten feet high, or about twelve or fifteen hundred cubic feet to each sleeper.

In hospitals, one thousand cubic feet—that is, a space equal to ten feet each way, length, breadth, and height—is allowed for each patient. Now, according to this rule—one which ought to be carefully observed—a bed room for a married man, wife and child, ought to be not less than eighteen feet long, by fifteen feet in breadth, and ten feet high, which would give two thousand seven hundred cubic feet for three. The health of a hard working man requires this to enable him to recruit his strength during night for to-morrow's task, and to rear a healthy family. This is a fact; and it is equally true that small bed rooms are no less a curse to the laborer than they are to the farmer, the landlord, and the nation.

As, therefore, each out-breathing vitiates the whole air of a room, as a drop of milk will discolor the whole bulk of water in a tumbler, the chambers for the members of families should not only be large

and commodious, but should be so arranged that a system of ventilation, at least to a small extent, shall be going on all the time, not only in spite of inattention, but a system which can not be easily prevented, which is accomplished by the simple expedient of having a fire place in each room which cannot be closed with screens or "summer blowers;" for by this means a draft will be made by the cold air coming in at the bottom of the doors and from other places, passing over the floor towards the open fire place, driving the heavy carbonic acid gas before it up the chimney.

For the purpose of more perfect ventilation of each apartment, especially those which are to be occupied as chambers, the sashes should be so arranged that they can be let down from above as well as raised from below, for the reason that the foul air of a room rises to the ceiling in warm weather because it is lighter than cold air. This makes room for the cold air from without to rush in at the lower part of the window; thus a "circuit" or draught of air is soon formed, admitting pure air from below and driving the foul air out of the room above. But every chamber should be so constructed that a window can be kept open or raised, more or less, without having the draught come right in upon the sleeper, and it is safer that whatever draught there is should pass the foot of the bed rather than the head, because the feet are always covered. Hence it is not so easy to take cold nor so dangerous. The air blowing in upon a sleeper's head, for even half an hour, has often caused quinsy, or other form of sore throat, to prove fatal in the course of a very few days.

To show what a little taint in the atmosphere not natural to it may affect the whole system, it is only necessary to state an observed fact; that a man who sleeps near a poppy field, with the wind blowing towards him from the field, will die before morning. In the winter of 1860 a man named Robertson, his wife, and three children were in the habit of sleeping in one small, ill-ventilated room. One morning, about five o'clock, the wife woke in a very exhausted state, and found her infant of nine months dead in her arms. She immediately roused her husband who had barely strength to get out of bed. They next discovered that their son of three years of age was also dead, and a daughter of nine in an apparently dying condition, but recovered on being removed to another apartment. Facts like these show that breathing a bad air for a single night is perilous to life, and ought to have an impressive effect upon the mind of every man who has a family when he is contemplating building or arranging for them a home for life.

If a neglect of these things were invariably followed by death before morning, attention to them would be compelled. But, although the deleterious effects do not thus speedily and impressively follow, they do inevitably result to all persons and under all circumstances; coming on slowly, it is true, but none the less surely and disastrously. Professor Carpenter, the first physiologist in Great Britain, ascertained that an atmosphere containing six per cent of carbonic acid gas would produce immediate death; and that less than half that amount would prove fatal in a short time. But every expiration of a sleeper brings out with it some portion of carbonic acid gas, and disperses it through the room; and if six per cent of carbonic acid gas will cause speedy death, the effects of breathing it nightly, even in very small quantities, for twenty or thirty years, cannot be otherwise than pernicious to the whole system, must lower the standard of human health, and materially shorten life.

Every chamber, then, should be arranged to have a ventilating process going on all the time, when it can be done by having an open fire place in it; and as there can be no advantage but a positive injury, resulting from sleeping in any room colder than forty degrees above zero of Fahrenheit, a little fire should be kept burning in the grate or fire place under such circumstances. This creates a draft up the chimney, and keeps the atmosphere of a sleeping room comparatively pure. In cases of sickness, where an actual fire can not be kept, an admirable substitute will be found in placing a large lamp in the fire place, to be kept burning all night. This creates a draft without making much heat, and is a good means of ventilating a sick chamber, when warmth is not desirable, such, for example, as in measles, scarlet fever, and other skin diseases, where a cool air and at the same time a pure one is an indispensable means of a safe and speedy cure. But let it always be borne in mind that a cold air is not necessarily pure, nor is warm air necessarily impure.

With a little fire in a cold bed room not only is the chamber kept ventilated, but fewer bed clothes are needed; less clothing does more good next day, while there is a freer escape of gases and exhalations from the body of the sleeper, and the person wakes up in the morning more fresh and vigorous. Sleeping rooms for invalids and children should have a temperature of about fifty degrees in cold weather, never running lower than thirty-five. There is no advantage to any person from sleeping in a cold room.

It is said to be a remarkable fact that the disease of consumption is unknown in the City of Mexico, which is nine thousand feet above

the sea. In sleeping, the higher up from the ground we lodge, the better for health, as a general rule.

HOW TO FINISH ROOMS.

Bayard Taylor's opinion on this subject, with which our own entirely agrees, is thus expressed :

For the finishing of rooms there is nothing equal to the native wood, simply oiled to develope the beauty of the grain. Even the commonest pine, treated in this way, has a warmth and luster, beside which the dreary white paint, so common even in the best of houses, looks dull and dead. Nothing gives a house such a cold, uncomfortable air as white paint and white plaster. This color is fit only for the tropics. Our cheap, common woods—pine, ash, chestnut, oak, maple, beech, walnut, butternut—offer us a variety of exquisite tints and fibrous patterns, which, until recently, have been wholly disregarded in building. Even in furniture we are just beginning to discover how much more chaste and elegant are oak and walnut than mahogany. The beauty of a room is as dependent on the harmony of its coloring as that of a picture. Some of the ugliest and most disagreeable apartments I have ever seen were just those which contained the most expensive furniture and decorations.

My experience shows that a room finished with the best seasoned oak or walnut, costs actually less than one finished with pine, painted and grained in imitation of those woods. Two verandahs of yellow pine, treated to two coats of boiled oil, have a richness and beauty of color beyond the reach of pigment; and my only regret connected with the house is, that I was persuaded by the representation of mechanics, to use any paint at all.

ECHOING FLOORS.

As houses are now built, floors are apt to be very noisy annoyances. The timbers are so strained up that the floors become resonant, like a drum. Now this can be easily remedied at a trifling expense. After laying the under floor, nail down some sawed laths directly over and across the sleepers. These will show where to lay the upper floor. Now make a mortar of lime and sand, in which the latter ingredient may be in excess. It may be made thin. Pour it on to the floor and spread it just as thick as the laths, and let it dry before lay-

ing the second floor. Nail down the upper floor through the laths, and it will seem to you like walking on a brick pavement.

CHEAP CEILING.

A cheap plan for keeping an attic warm in winter is to sew pieces of sheeting together till you have sufficient breadth to cover the whole room. Tack this to the rafters and paste house-paper all over it. At one time nearly all the houses in California were finished in this manner.

TO PREVENT THE TRANSMISSION OF SOUND THROUGH A PLATE-GLASS PARTITION.

Have two plates with an air space betwixt. Ordinary windows may be glazed with double glass, having one quarter or one-eighth of an inch air space betwixt each sheet of glass; they will be warmer and deaden the sound.

TO CONSTRUCT A CHIMNEY THAT SHALL NOT SMOKE.

Chimneys are deservedly held to be of high rank among the great blessings of modern civilization. They were unknown to the Ancients. In the thirteenth century, chimneys were unknown in England.

There is considerable practical science involved in the construction of chimneys. Many smoke, and the plague of a smoky chimney is put in the same category with a "scolding wife."

Among the first who treated the subject of chimneys in a philosophic manner, was that wisest and most practical of our philosophers, Franklin, who published a treatise on the subject in 1785. This essay was followed by one on the same subject by Count Rumford—another American philosopher of a most practical turn of mind. These two authors have laid down the principles upon which all chimneys should be built. The flue should be the smallest place in the chimney. In ascending from the flue upward, in the course of about one foot the chimney should widen, or rather deepen off to about two and a half times the width of the flue. If we suppose the flue to be four inches, in ascending one foot, the distance from the inside of the front to inside of the back should be ten inches; and then if we suppose the width of the fire-place to be three feet, the caliber of the

ch mney on the inside will be 360 square inches. And the caliber should not be less at any point above. Then there will be room for all the smoke which enters the flue to pass upward without impediment. The chimney may be brought into a different shape, so as to make it appear well at the top, but still the number of square inches in the caliber should not be lessened.

HOW TO CURE A SMOKY CHIMNEY.

I have just succeeded, says a correspondent of the *Mining Journal*, in curing an obstinate smoky chimney by the aid of a zinc covering outside a common earthenware chimney pot, having two openings in the zinc, one east and the other west. There are also two partitions, or stoppers, north and south, to prevent the draught from escaping by the opposite opening. By the aid of this contrivance, an upward current of air is carried outside the flue to its top, on the windward side of the chimney. I have now had the plan in use for some time, and in the face of several most violent storms not a particle of smoke or soot has come down the flue. In other rooms, the soot was blown on the floor to a large extent.

CELLARS.

Cellars under our dwelling-houses are generally deemed indispensable. They are certainly very useful; but there are evils of such magnitude connected with them, that some have advocated their non-construction. They are almost universally manufactories of foul air, which, finding its way upwards by means of doors, windows, stairways and crevices in the floors, diffuses its noxious elements through the rooms above, and becomes a fruitful source of disease; and again, they serve as a harbor for rats and mice, in the mode in which they are usually constructed, affording access to the side walls from below. It is not necessary, however, that they should be infested with vermin or half filled with rotten garbage, to produce the results complained of. The surface of the earth is filled with decomposable substances, and whenever the air is confined in any spot, it becomes saturated with various exhalations deleterious to health. Means must be provided, therefore, for their thorough ventilation, or cellars must be totally abandoned. A cellar, to fully serve its purposes, should be cool in summer, impervious to frost in winter, and at all times free from moisture. The walls should rise one or two feet at least above

the level of the surrounding ground, and should be laid in good lime mortar, or at least pointed with it. The thickness of the wall should not be less than fifteen or eighteen inches; and if the house walls above be built of brick or stone, two feet is preferable. The cellar should have a connecting drain at its lowest corner, which should always be kept free from obstruction; and each room in it should have at least two sliding sash windows to secure a good circulation of air. In very cold climates, those portions of the wall above the surface of the ground should be double, either by means of a distinct thin wall on the outside, or by lathing and plastering on the inside, and be furnished with double windows as a farther security against frost. An outside door with a flight of steps is desirable in every cellar, and especially in one connected with a farm house.

It should always be borne in mind that in constructing cellars, particular care should be taken to have all its walls, and their connecting surfaces with the ceilings above, all perfectly tight, and secure from the egress and ingress of all vermin, however diminutive. A due observance of these hints, with those given above, in regard to keeping the cellar clear from all rubbish and decaying vegetable matter, will ensure any house from the presence of vermin.

The greatest precaution should be exercised to insure cleanliness and pure air with ventilation, preventing it from becoming a fruitful source of sickness and suffering. In a family of one of the healthiest villages in Massachusetts, a few years ago, the father and three children died of an obstinate slow fever, and the mother and two other children were "hard at death's door" for weeks. Before the fatal results, but too late to prevent them, an examination of the house by order of the physician disclosed in the cellar a barrel partly filled with decayed onions, the undoubted cause of the disease. If there is any obscure or slow disease in the family of any reader of this article, and a cellar is attached to the building, it is worth the experiment to let the cellar be emptied of every movable thing, the walls and floor thoroughly swept, and, if practicable, washed, and after a week or two airing, the walls and ceiling well white-washed, and if the walls are not plastered, and the floor not covered with a hard cement, let both these be done, and the white-washing repeated once every year, first sweeping off the old.

Every partition and every shelf in a cellar should be made of smoothly planed boards, well covered with good white paint, to prevent the accumulation of dust, and aid in making the cellar light, cheerful, and clean; for the more light you can have the better. Ev-

ery cellar should be so contrived that either by its grating or windows or doors, it may be easily and thoroughly ventilated an hour or two at least every day in the year ; this is often very perfectly done by a flue running into the chimney. All shelves in a cellar should be so arranged that you can go all around them ; if suspended from the ceiling, all the better.

Where a cellar cannot be drained water may be excluded by coating the bottom and sides with water-lime cement, making a perfect cistern, with the difference that a cistern is to hold water inside, instead of excluding it. The cellar must not be allowed to freeze as that cracks cement.

TO MAKE A CEMENT FLOOR.

The surface should first be rammed down and leveled ; then hydraulic cement, mixed with sand, of about the consistency of thick mortar, should be laid on to about one inch in thickness, and its surface leveled with a scraper made of a thick plank. In laying down such a floor, sections of about eight feet square should be marked off, and finished one after another. A coat of clean sand or gravel, one inch thick, should be laid on the top of the cement ; and after it has stood about half an hour, the whole should be rammed down smooth with a pounder, when the work is complete, after the surplus sand has been swept off. In a few days, such a floor becomes hard as a stone, and quite impervious to water. Or, mix two parts best water lime, or cement, (proved such,) with three parts sharp, clean sand, and spread immediately over the cellar bottom. This will become like stone. A more perfect bottom and requiring less cement, is made by first finely and evenly paving the bottom, then applying rather thin mortar of water lime. It runs down among the stones, and all form a hard mass. The best mortar will soon harden, and it is therefore best to mix the lime and sand *dry* first, and then mix with water such portions successively as may be quickly applied. The very best hydraulic cement, with perfectly clean, sharp, white sand, will make a cement that will withstand even the effects of moisture and the hardest freezing.

CONCRETE FOR UNDERGROUND WALLS.

Mix dry one peck of good hydraulic cement with two pecks of clean gravel, then wet the mixture and use it immediately as a mortar for

laying the wall. Or boards may be secured to form a box of the width of the wall, and the mortar may be made so thin that it can be poured into the trough together with the stones to form the wall. Unless hydraulic cement is used immediately after it is wet, it is worthless. It becomes hard in a few minutes. Clean sharp sand answers the same purpose as the gravel.

TO MAKE COMMON LIME MORTAR.

As to the proportions of lime and sand for mortar there is a wide variance. One says "it should never exceed two parts by measure of sand to one of lime paste." Another says, "the true rule, for good plastering, is *seven* bushels of sand to *one* of good stone lime."

In slacking common lime for making mortar, General Gilmore recommends in a recently published book, that all the water required be poured on at once, and that the heap be covered until next day, and then be mixed with its proper quantity of sand; after which the mortar should be heaped up for future use. It is a common practice to slack the lime, mix it with sand, and apply it directly to walls, without allowing it time to rest for the substances to combine more intimately. Such mortar is generally deficient in adhesive qualities.

TO MAKE MORTAR IMPERVIOUS TO WET.

Says the *Builder*: Provide a square wood trough say eight feet by four feet; put a quantity of fresh lump lime in, add water quickly. When the lime is well boiled, having assisted that operation by frequent stirring, add tar, (the heat of the boiling lime melts the tar,) stir it well, taking care that every part of the lime is intimately mixed with the tar; then add sharp sand or crushed clinker, and stir well as before, after which, in about twenty hours it will be fit for use.

Tar and lime may also be used, in order to make either wood or mason-work water proof. The best way to prepare gas or coal-tar for coating wood work with, is to get some lime, avoiding chalk lime, and slake it to a fine powder; boil the tar for half an hour, and then add about one pint of the hot lime powder to a gallon of tar, and boil it about half an hour longer stirring it all the while. It will then be ready for use. Lay it on with a brush while it is hot, and you will find it to set hard, and have a brilliant appearance. It is the best coating for wood work, except lead.

BUILDING MATERIALS.

The great waste of our country is the decay of the materials with which we build. A house, well-built, of proper materials, should be as good a hundred years afterward as on the day it was finished. There are houses of brick and stone more than a century old, in this country; and in Europe, plenty of cottages and palaces three or four centuries old.

We build of wood—chiefly of the softest and most destructible. Our houses are old in twenty years. Our wood works, of all kinds, decay with great rapidity. Our fences need continual and costly renewals. Our bridges go to quick destruction. What a perpetual labor and large cost in renewing railroad ties and tressle-work!

Yet there are woods that last; and all woods, with a little expense, can be made almost indestructible. The foot of a fence-post can be charred, so that it will last longer in the ground than out. Timber can be so impregnated with corrosive sublimate, or sulphate of zinc, that no rot or worm will touch it. We can give wood the properties of minerals. It is said that the means have been discovered by which all kinds of timber may be petrified, at so cheap a rate, that we may have an indestructible material for the most common purposes.

We do not know that the experiment has been tried; but, we believe, that standing timber, by means of its own circulation, may be saturated with powerful antiseptics. If an air-pump were placed at one end of a log, and the other immersed in a mineral solution, the pressure of the atmosphere would drive it through every pore.

Will it pay? That is another question. The man who only wants an article for his own temporary use, and who does not care for its permanent value, will not care about it. But it will pay our government to build ships and public works that will not decay. It will raise the value of all railroad stocks by diminishing the estimates for prospective repairs. Perhaps it will pay us all to have some thought for the future, and the good feeling of our posterity.

BUILDING OF STONE AND BRICK.

Spring and fall are the best seasons of the year for building of brick or stone. In warm, dry weather, the moisture of the mortar evaporates too rapidly; and in frosty weather it crystalizes, and when thawed it sweats out. The bricks should by all means be wet when building in warm weather, or they will at once abstract the moisture

from the mortar, whereby the binding vehicle between the two is removed, and the mortar crumbles into dust.

BRICK MAKING.

Bricks may be made of any earth that is clear of stones, but all will not burn red. According to Leibourn, the earth should be dug before winter, and not made into brick before spring. In general, the earth whereof bricks are made, ought not to be too sandy, which makes them heavy and brittle, nor too fat, which makes them crack in drying. Tempering the earth properly is the all-essential secret. Using too much water makes them brittle; too much sand or ashes, or sandy earth makes a light brick full of cracks. The well-drying bricks before burning, prevents their cracking and crumbling in burning. It is not the richness of soil, but lack of duly tempering, that causes failure in brick making.

TO PROTECT STONE AND BRICK HOUSES AGAINST DAMP.

The employment of the pitch of coal tar has become very common in the towns of the North of France, to protect the basements of houses from the effects of external damp; but of course this cannot prevent the damp rising from the ground through the interior of the walls. To effect this object in damp situations, the layers of brick or stone for cellar walls, when being erected, should be treated with this pitch. In New York the walls of the basements of many buildings erected along the streets fronting the rivers, where they are subjected to back water during the high tides, have been protected from damp by asphalt. The bricks are dipped into boiling asphalt, laid up in three courses, and become impervious to moisture; this is an old and effectual method practiced by the ancients for preserving walls from damp.

The *Scientific American* says: To exclude dampness from brick work, varnish it with a coating made in the proportion of mixing eight pounds of linseed oil with one pound of sulphur, and heating to two hundred and seventy-eight degrees.

And the *American Agriculturist* says: To prevent dampness in walls of stone or brick houses, the only sure means is some kind of non-conductor between the wall and the air of the apartments. The best method is to "fur off" an inch or two from the solid wall, then plaster tightly, and it will keep out both frost and moisture better

than a foot of solid granite. Even a cellar can be made dry and comparatively healthy in this manner.

TO PREVENT SANDSTONE FROM SCALING OFF.

Also to prevent brick from absorbing water: give it a coat of raw linseed oil; as soon as that is sufficiently absorbed, give it a second coat, and so on until you have given it what you think enough. Care must be taken not to allow any of the coats to dry until all that is intended to be put on has been applied.

INDURATION OF STONE, BRICK, WOOD, &c.

All kinds of soft porous stone become hard by white washing them with fresh slacked lime. The lime absorbs carbonic acid from the atmosphere, and is converted into carbonate of lime. A portion of this remains in the pores of the stone, and ultimately becomes marble.

Mr. F. S. Barff, of Dublin, for preserving and hardening brick, stone, and other substances, and timber, proposes to use soluble silicate of soda, or of potash, by preference the silicate of potash with a mixture of sulphate of barytes and carbonate of lime. The mixture is laid on with a brush.

TO MAKE ARTIFICIAL MARBLE.

Soak plaster of Paris in a solution of alum. Bake it in an oven, and then grind it to a powder. In using, mix with water, and to produce the clouds and veins, stir in any (dry) color you wish. This will become very hard, and is susceptible of a high polish.

Artificial marble has been obtained both by Sir James Hall, of England, and Professor Rose, of Prussia, by subjecting chalk to a high heat in a close vessel.

SHINGLES, AND HOW TO LAY THEM.

The *New York Tribune* says: Of all the inventions ever contrived, that of sawed shingles has proved one of the greatest detriments to the country. The only profit is to the patentee and manufacturer. To every one that has ever used the article it has proved a loss, no matter what the saving has been in first cost, unless the shingles, previous to laying on the roof, were saturated with something to prevent their saturation with water every time the rain fell upon them. It is this that rots them and gives us leaky roofs, where sawed shin-

gles are used; in one-fourth the time that split shingles remain sound. It is true that good shingle timber is becoming scarce, and more and more so every year, and that farmers must have something as a substitute. What that something is we know not, but are quite sure, where economy is studied, that it will not be sawed shingles. If they must be used, let the roof have a very steep pitch. On a flat roof, we have known them to rot entirely through in five years. Another roof, ten years old, both shingles and roof-boards, when taken off, crumbled into a mass of rotten wood, that scarcely bore any resemblance to boards and shingles.

Mr. Ed. Emerson, of Hollis, Mass., thus gives in the *New England Farmer*, some hints upon shingling roofs that are worthy of repetition :—

As I shingle differently from almost every one else, I will give you my method, and my reasons for it. However wide the shingles may be, I do not allow the nails to be put more than two inches apart. *Reason*—If your shingles are wet or green, and the wide ones are nailed at the edges, the shingles must split, or one of the nails must draw when the shingle shrinks. If the shingle is dry, it must huff or crowd the nail out when it swells. Thus your nails are kept in constant motion by every shrink or swell of the shingle, till they are broken, pulled out, or the shingle is split. I do not want the nails drove quite in, or so as to sink the head. *Reason*—The heads of the nails hold up the butts of the next row of shingles, and give the air a free circulation.

A correspondent of the *Canada Farmer* says, instead of taking off his old shingles when he renewed the roof of his dwelling, he covered them over with mortar, and with nails some half an inch longer than the common ones, put on the new shingles.

PRESERVING SHINGLES.

By steeping shingles in a solution of the sulphate of copper or in lime-water, they will endure much longer than the common unprepared shingles, and render them partially fire-proof.

Hon. D. Hunter says that slaked lime sprinkled on the roofs of buildings on rainy days, will remove moss and preserve the shingles for nearly double the time they would last if not thus treated. Put it on thick enough to make the roof look white, and two applications will clean off the moss and leave the roof white and clean. It should

be applied annually; but if the lime is not to be had very conveniently, wood ashes will answer the same purpose.

The following composition will stay on, if well put on, and will preserve the shingles: Mix a bushel of good lime into a smooth white-wash, in about forty gallons of water. If there are any lumps, strain them out; then add slowly, and stir thoroughly, twenty pounds of Spanish whiting, seventeen pounds of rock salt, twelve pounds of sugar. Keep the mixture well stirred while using. Put it on thin—two or three coats—and it will keep white, and preserve shingles, fence, or any rough boards, better than paint, and it is infinitely cheaper. It may be made stone-color with water-lime, or yellow by ochre.

Dip the shingles in a tub of white-wash made of lime and salt. Line with red chalk. The lime will harden the wood, and prevent its wearing away by rain and weather, and will effectually exclude moss, a common hastener of decay. It is said that shingle roofs will last twice as long when treated in this way, as without it. White-washing each successive layer of shingles after nailing down is sometimes adopted, but it is less effectual. White-washing the roof after completed is comparatively useless, as the lime, or but little of it, can enter between the shingles, where the water lodges and hastens the decay. Some may object that this is "troublesome," but so is nearly everything that is done in a thorough and consequently economical manner. Carpenters may object on account of getting lime on their hands and clothes, and declare they know it does not do any good.

TO STOP LEAKS IN ROOFS.

By mixing common tar or gas tar with clean, fine sand, to the thickness of a paste, a good material is formed for stopping large leaks. Small ones may be closed by thickening common white lead paint with fine, clean sand. Or mix two parts of coarse sand with one of paint skins, and apply once or twice to leaks.

FIRE-PROOF WASH FOR SHINGLES.

Says the Albany *Knickerbocker*: A wash composed of lime, salt, and fine sand, or wood ashes, put on in the ordinary way of white-washing, renders the roof fifty fold more safe against taking fire from falling cinders or otherwise, in cases of fire in the vicinity. It pays the expense a hundred fold in its preserving influence against the ef-

fects of the weather. The older and more weather beaten the shingles, the more benefit derived. Such shingles generally become more or less warped, rough and cracked; the application of the wash, by wetting the upper surface, restores them at once to their original or first form, thereby closing the space between the shingles, and the lime and sand, by filling up all the cracks and pores in the shingle itself, prevent it from warping for years.

Mr. John Mears communicates the following to the Boston *Cultivator*. He states that after an experience of eleven years, and using seven forges in his blacksmith shop, he has never seen a shingle on fire, nor has a nail started. The following is his method of preparing them:

"Having a large trough, I put into it a bushel of quick lime, half a bushel of refuse salt, and five or six pounds of potash, adding water to slack the lime and dissolve the vegetable alkali and the salt—well knowing that pieces of an old lime-pit, a soap-barrel, or a pork-tub, were not the best kindling stuff, and having long since learned, while at the Vineyard Sound, that hot salt-water white-wash would endure far longer than that made with fresh water, absorbing moisture, striking into the wood, and not peeling the washing off. I set the bundles of shingles nearly to the bands in the wash for two hours, then turned them end for end. When laid on the roof and walls they were brushed over twice with the liquid, and were brushed over at intervals of two or three years after."

ROOFING COMPOSITIONS.

The essential ingredients in most roofing compositions are coal tar and asphaltum.

The following is a cheap roofing composition: Take coal tar, 300 pounds; hydraulic lime, 150 pounds; ocher, 75 pounds; and whiting, 40 pounds. Mix these substances together thoroughly, and they will make a sufficient quantity of cement to cover 1,000 square feet of roofing. It should be laid down upon strong cotton sheeting, nailed to the roof-boards, and on the top of all a coat of dry sand or gravel is to be laid and pressed firmly down. The cost of such roofing is about \$2.30 for ten square feet. It answers very well for sheds and other outhouses.

TILE ROOFING.

The recommendations of tile are its durability, its security against fire from the falling of burning soot, to which dry shingles are so very liable, and the clearness of rain water running from them.

THE CHEAPEST BARN.

At a Farmers' Club, held in West Springfield, Mass., after consultation and debate—

"It was decided that a large barn was better than two or more small ones; that a tight barn was better, even for badly cured hay, than an open one; that a brick barn and a slate roof, were the best and cheapest for a man who has all his materials to buy; that a good connection between a house and barn is a covered walk, overhung with grapevines; that economy of roof and convenience for work were of the first importance in any building; that warm water and warm stables were essential to the comfort of animals; that the housing of manures was judicious; that liquid manures are largely lost, even by those who have cellars and sheds for storing them; and that the best absorbants of liquid manure are buckwheat hulls, leaf mold, sawdust, fine sand, dried peat, turf and straw."

TIGHT BARNs.

The *Massachusetts Ploughman* has the following remarks: "Cattle must have air, or they die. Hay must have air, or it becomes musty. Corn must have air in the crib, or it rots. Many farmers seem not to understand this; and they inclose their barns as tight as double-boarding will permit—making it necessary to give their hay two or three hours more sunning than it would need in barns that admit some air between the boards. It is a universal law that all living animals require air. Some animals require much more than others. Those living under water require the least, while the fowls of the air require the greatest quantity, and their blood is warmer than that of cattle. Why will practical farmers continue to throw away their money in building barns so tight that the cattle cannot breathe in them—so tight that the hay becomes musty, and the horses become diseased with the heaves? The wall boards of barns should not be jointed. It is loss of labor and lumber to make the edges straight by planing or jointing. Good barn boards will come together quite close

enough by merely pressing them close together by means of a small iron bar. Boards put on in this way will keep the snow out, and let a little air in—enough to keep hay from spoiling and cattle from catching fevers.”

WELLS, CISTERNS, FILTERS AND ICE-HOUSES.

PUTRIDITY IN WELLS.

Sometimes the water in wells and cisterns suddenly acquires a putrid taste and smell as though some animal matter was undergoing decay therein, yet which upon careful examination is found not to be the case. A remedy is frequently found in the thorough agitation of the water, as by working a chain pump for two hours or more, bringing the water more or less in contact with the air. The next day the water will be as sweet as ever.

TO PURIFY A WELL INFESTED WITH WORMS.

Worms in your well may be destroyed by throwing some quicklime into the water and allowing it to stand for several hours. After this draw off the water and allow a fresh supply to accumulate in the well.

TO EXAMINE THE BOTTOM OF A WELL OR CISTERN.

The *American Agriculturist* says it is not known by most persons that the bottom of a cistern or deep well even, may be thoroughly inspected for filth, or lost articles, by using a common looking glass. When the sun shines, hold the mirror so that the light will be reflected in a bright spot at the bottom of the water and a pin can be seen at a depth of ten to twenty feet or more. We have in this manner seen fishes at the bottom of thirty or forty feet of clear water. If the sun be hid by intervening objects, use two or more mirrors to bend the light by double or triple reflections to the desired point. We have thus thrown the light coming into the dining-room window, by one mirror through the door into the kitchen, by another to a corner of the latter room, and by a third mirror cast it down into a cistern sufficiently strong to see a small angle worm at the bottom.

TO OBTAIN WATER BY MEANS OF A WELL AND SIPHON.

If there is some spot within convenient distance, where you can find water by digging on higher ground than where you wish to use it; then put in a pipe, exhaust the air with an air pump, and if there is no defect in the pipe you will have running water. In the event of air collecting in siphons it can be removed by putting an air chamber on the pipe at the highest point; the air will then collect in the chamber instead of the pipe, or else attach a cock to the siphon and pump the air out through it and a pipe with a lifting pump.

HARMLESS LEAD PIPES.

It is said by Dr. Schwartz, of Breslan, that a strong solution of the sulphide of potassum or of sodium, used at a temperature of 212° Fah., passed through lead pipe, and allowed to act upon the metal for from ten to fifteen minutes, converts the interior surface of the pipe into an insoluble sulphide, through which water may pass as uncontaminated as if glass were used. Also that the boiling solution of caustic soda and sulphur will answer the same purpose. And the *Scientific American* adds that if caustic soda and sulphur will accomplish the objects stated above, it is one of the most useful discoveries of the age.

HOW TO SUBSTITUTE LEAD PIPES FOR LOGS.

Some one with a good stock of yankee gumption has told a fact worth knowing—how to save labor in substituting a line of lead pipe in the place of logs. “It happened once that a course of pine pump-logs, sixty rods long and two and a half feet under ground, sprung a leak from decay; and wishing to relay with lead, I dug to the logs at distances apart of five or six rods, taking out a piece of log in each place. Then, entering the pipe at the fountain, and stationing a man at each opening, we were able to run it up through to the spring by soldering together once. This was done nine years ago, and yet it works well. The logs afford a fine protection and bed for the pipe, and save quite a bill of expense for digging and covering.”

A SIMPLE AND INGENIOUS METHOD OF MENDING WATER PIPES.

It is described by a correspondent of the *Scientific American*. There

was a pressure of water on the pipes of more than fifty feet head. The two ends of the pipe were plugged, and then a small pile of broken ice and salt was placed around them; in five minutes the water in the pipes was frozen, the plugs removed, a short piece of pipe inserted and perfectly soldered, and in five minutes more the ice in the pipe was thawed and the water flowing freely through it.

THE BEST WATER PIPES.

The *Scientific American* says: We think that water cement and gravel make the best pipe for conducting water. It is necessary for some one who understands the art, to lay it, or show how.

TO PREVENT WATER FREEZING IN PUMPS.

In winter set the handle of your pump as high as possible at night, or throw a blanket over it. A very simple, practicable and economical expedient for preventing the freezing of pumps in exposed situations, consists in throwing in at the top of the pump each evening when there is reason to apprehend danger, a small quantity of brine, say a quart or less, and as it runs out at the spout catch and throw it back a few times so as to mix it with the surface water. In extremely cold weather plug the spout and fill straw in the handle mortise, and you will effectually ward off an evil which incommodes many families in winter. Indeed, it is no uncommon thing for pumps in cisterns and wells in certain locations to freeze so as to be of no further service until spring, or a general thaw restores them.

HOW TO THAW OUT FROZEN PUMPS.

Get a tin pipe, half inch in diameter, of sufficient length, and with a funnel at one end, put it down one side of the pump handle to the ice, and pour hot water into it. It will cost but a few cents and will prove perfectly effective in all cases, as the heated tin will sink directly through the ice.

The *Western Christian Advocate* says: Salt is an effectual solvent of ice, and by its use the worst frozen pumps can be relieved. If the pump is only slightly frozen, a handful or two dropped in at the top, so as to come in contact with the ice, will render it liquid in an hour or two. If the case is desperate, the quantity of salt must be increased. Repeat the dose from time to time, till the object is accomplished.

HOW OUR SOLDIERS CONTRIVED TO CARRY WATER FROM THE RIVER TO THE CAMPS AT BATON ROUGE.

An ordinary barrel has a block of wood fitted to the head with a pivot, like the wheel of a wheelbarrow, and a rod of iron, like the tongue of a buggy, that forks near the barrel, to draw it like a garden roller, the barrel revolving like a wheel. Two men will draw a barrel up the levee with considerable ease.

SUCKING UP WATER FROM SAND.

Livingstone, the African traveler, describes an ingenious method by which the Africans obtain water in the desert: "The women tie a bunch of grass to one end of a reed about two feet long, and insert it in a hole dug as deep as the arm will reach, then ram down the wet sand firmly around it. Applying the mouth to the free end of the reed, they form a vacuum in the grass beneath, in which the water collects, and in a short time rises to the mouth. It will be perceived that this simple, but truly philosophical and effectual, method might have been applied in many cases in different countries, where water was greatly needed, to the saving of life. It seems wonderful that it should have been now first made known to the world, and that it should have been habitually practiced in Africa, probably for centuries. It seems worthy of being particularly noticed, that it may no longer be neglected from ignorance. It may be highly important to travelers on our western deserts and prairies, in some parts of which water is known to exist below the surface."

WATER CISTERNS.

Cisterns are often made by digging out a space about the shape of, but larger than, a potash kettle, plastering the bottom and sides with water-lime mortar, and covering the top with timber and plank, and then with a foot of earth, to prevent freezing, leaving a curb through which water is drawn, the cistern cleaned, &c. But the top being broad requires much timber to cover it; and this covering, unless supported by posts, will be apt to fall in in a few years. It is better to build a wall of stone—a foot thick will do—in the form of an arch. The wall being properly built as an arch, can never fall in, and the earth being packed well outside, it cannot burst by the pressure of the water within. The amount of plank to cover it is small, and it is

very capacious. Cisterns are commonly made much too small. Ten feet in diameter and ten feet deep will have a capacity of about two hundred barrels; twenty feet diameter and twelve feet deep, about one thousand barrels.

Every farm establishment, says the *New England Farmer*, should be provided with a capacious and conveniently located water cistern. If the farm buildings are numerous and compactly situated, a very small expenditure will answer for the construction of all the apparatus requisite for conducting the water from the roofs into the reservoir, which, for greater convenience, should be located in some place where it may supply the wants of the animals in the yards during winter, as well as the household.

Good and substantial reservoirs, perfectly water tight, may be formed of split stone, brick, plank, or even without either, the interior surface as well as the bottom being covered with two or three coatings of cement. We have known them made by cementing directly upon the earth, but in our climate of penetrating frosts, such would not be the best way. They may be made square, oval or round; but made in the form of an egg, they are very strong, and require no deck or top covering, as the opening in the top may be only a little larger than a man's body, so that he can enter it occasionally to clean it out.

In a cistern constructed in this manner, the water will soon become clear and fit for family use, if the roofs of the buildings upon which it falls are kept ordinarily clean. Where there is a good cistern at or near the house, there is a feeling of safety and comfort, which one can scarcely have without it, and these pleasurable emotions are considerably heightened by the fact that it is an economical arrangement for supplying water. But the cistern has another recommendation of more value than either of these, viz: It provides the women with those indispensable conveniences, without which we do not believe a good, genial temper and a pervading harmony can long exist in the household. Men build their fine barns, purchase their mowing machines, newly-modeled plows, &c., and too often leave the women to go ten rods and draw water with an old creaking sweep from a forty foot well, or allow them to chop the wood with which to cook the breakfast, or keep the children warm. Nothing tends more to good order and serenity of temper in the house, and the comfort and economy of all its affairs, than the existence of the numberless and nameless little conveniences which enable each one to perform his or her part of the household duties with facility and ease—and among them

all, none is more important than a plenty of pure, soft water, near at hand.

TO KEEP THE WATER IN A CISTERN PURE.

Live fish—pickerel or trout—will keep a cistern free from worms, dirt or smell.

TO CLEANSE A CISTERN.

Apply two pounds of caustic soda in the water, and in a few hours, it is said, all foulness or unpleasant smell will disappear. Concentrated lye will answer an equally good purpose.

FILTERS AND FILTERING CISTERNS.

The importance of purifying thoroughly the water which is used as a drink is scarcely appreciated. There is no doubt that thousands of cases of severe illness might be prevented by the general use of pure water.

All the different modifications of filters have one similar and essential provision, namely, the passage of the water through layers of coarse, clean sand, or fine gravel, and charcoal. The gravel and sand are for the purpose of keeping the bed loose and for retaining the coarser impurities; and the charcoal, with its powerful absorbent powers, takes out such foul matter as may be held in solution, and which no merely mechanical straining would intercept. In some filters, the sand or fine gravel is mixed with the charcoal, and slightly moistened to make it pack well; in others they are placed in alternate layers of about two inches, and separated from each other by a single piece of cotton flannel. We do not know that one mode is better than the other; but it is well in either case to use the flannel to prevent the displacement of the materials, and to keep the charcoal from being washed out of place. The sand used should be both coarse and clean—good beach sand answers an excellent purpose. The charcoal should not be pulverized, but granulated, so as to be about the size of peas, or coarse shot. It is said that the refuse accumulations in the pipes of locomotives, which is usually thrown out at engine-houses, are just the material for that purpose.

Filters are either portable, and used for purifying a few pails of water at a time, or else fixed and attached to the cistern, to cleanse all that passes into it. The simplest portable form consists of a bar-

rel or tub, with a stop-cock to set within a few inches of the bottom, for the escape of the purified water. On the bottom is laid clean stones about the size of hens' eggs for the first. These may occupy about one-fourth of the barrel, and are to form a reservoir for the water after it is cleansed. The stop-cock should be an inch or two above the bottom, so that any possible sediment may not be drawn off. The filter may be raised a little on bricks or wooden blocks, to set a pail under the stop-cock. On the top of this layer of stones are placed smaller stones, and then again smaller still, and the surface smoothed off, about one-third of the way up, and the whole covered with a perforated board. Cover the whole of this board with a piece of flannel, which should extend up an inch or two against the sides of the barrel. On this place the mixture of sand and charcoal, already described, packing it completely but not pounding it, until within six inches of the top, and cover it with a layer of coarse gravel. Provide a large tin pan to set in and fit the top of the barrel. Solder a few short tubes in the bottom of this pan, extending upwards an inch from its bottom, and thrust a piece of sponge into each tube. These serve to strain the water as it passes through into the filter, and coarse sediment will settle on the bottom of the pan without choking these tubes. The pan may be lifted and washed out once a week, more or less, as sediment accumulates in it, and the sponges are easily withdrawn and cleansed. The capacity of the reservoir at the bottom may be varied with the size of the barrel, and with the quantity of water required at a time; and the thickness of the layer of sand and charcoal will be indicated by the impurity of the water to be filtered. A small lead tube should extend from the top of the barrel down its inner side to the reservoir to admit air, as the water is drawn off—otherwise it will not flow through the stop-cock freely when a supply is wanted. This tube is most conveniently secured to the side of the barrel by means of small pieces of wood screwed on, with a notch cut in for the tube to pass through. It may pass through the barrel an inch from the top, which will secure the upper end and place it out of the way.

The wood of the barrel, and the stones, may at first impart an unpleasant flavor to the water, but it will soon pass away. The taste of pine is removed by alkali. The water may be dark-colored a day or two from the charcoal.

The same form of filter may be fixed to cisterns. There should be two cisterns, a large one and a small one, the water running through the filter in passing from the latter to the former. The smaller cis-

It should be large enough to receive all the water which falls in a single shower, which may be easily estimated by remembering that every inch of rain that falls upon a roof, (and few showers exceed one inch,) yields two barrels for each space ten feet square.

CHEAP AND SIMPLE FILTER FOR CISTERNS.

Construct a box about two feet square and eighteen inches deep, with a perforated false bottom, and leave a space under it of about three inches for the filtered water to flow by a pipe in the bottom into the cistern. Layers of small pieces of charcoal and washed sand should be placed to a depth of ten inches upon the false bottom, and a piece of Canton flannel should be nailed over all on strips at the side of the box. The water to be filtered should fall upon the straining cloth and leave a space of four or five inches to the top of the box. The straining cloth must be boiled in soap-suds and washed occasionally, and the layers of filtering materials should be washed or renewed once a year, and perhaps oftener.

THE CHEAPEST FILTER.

Le Moniteur Illustré des Inventions says: It is known that charcoal is the most efficacious substance that can be employed for the purification of liquids; foul and stagnant waters containing decaying animal carcasses have been purified to the extent of becoming inodorous, potable and healthy. Here is a method of constructing one of these filters in the easiest manner: Take a flower pot, or any other vase having a hole in the bottom, fill the bottom with large, round pebbles, then cover with smaller pebbles, then with coarse sand or fine gravel, and finally with about four inches of pounded charcoal. The coal may be placed in a bag and broken with a mallet or hammer. It should be sifted, and the very finest dust thrown away. The charcoal should be freshly burned and renewed occasionally. It might be covered with a clean flannel held down by stones on the corners.

THE BEST FILTERING MATERIAL.

Animal charcoal broken in small pieces about the size of beans is allowed to be the best filtering medium for water in the world. Ordinary rain water filtered through this medium becomes as pure as distilled water.

ICE-HOUSES AND STORING ICE.

An ice-house is easily built above ground by inclosing a space between two board walls, of about a foot, and filling this space with sawdust—providing free drainage, but preventing the admission of air from below—packing the ice in sawdust—and allowing free ventilation above. A want of the latter, is often a cause of failure. Ice may be kept in a small coarse barn with a single boarding, by carefully inclosing the ice with a foot of sawdust on every side.

The best situation for an ice-house is a northern exposure shaded on the south by a hill or a building. It should be erected on the top of the ground in preference to the old plan of excavating on a hill-side. The ground for it should be prepared by digging a drain about two feet deep to run through the center, and then filling in the space intended for the floor about a foot deep with broken stones and gravel, and over this the plank floor of the house should be laid. It should be laid on joists secured in the sills of the frame. The sides should be double with a space between the inside and outside planking of about from four to six inches. The supports and braces should be strong. A very common exercise of judgment will enable almost any man to select proper timber for the purpose. The roof should also be double and have a considerable slope. The spaces between the double sides and ends and roof may be filled in with dry sawdust, dry spent bark, fine charcoal or straw. The opening for receiving and taking out the ice should be on the north side, and it should have a double door opening outward. In filling the house, clean straw should be spread upon the floor in a layer of several inches. The blocks of ice should be cut as large as possible and be packed close together, and no spaces be permitted between them. All the interstices should be rammed down with small pieces of ice and sprinkled with water so as to form an air-tight mass. A space should be left all around the sides to be filled in with several inches of straw. No bottom ventilation should be permitted, but there should be a space left at the top for ventilation by a lattice window.

Very cold days should be chosen for filling the ice-house. After the blocks are cut and lifted from contact with the water they should be left for an hour or more exposed to the atmosphere. Ice does not keep so well when run into the ice-house direct from the pond, because that which has been in contact with the surface of the water is only a few degrees lower in temperature than the water, whereas the atmosphere may be twenty or more degrees lower. Clear solid ice

should be selected. Porous blocks contain air and thaw more readily than solid ones. When the house is filled the top of the ice should be covered with about three inches of straw, and when ice is taken out in warm weather the door should be closed as soon as possible afterward.

An ice-house about twelve feet square will keep as much ice as will supply a large family. Every farmer should have an ice-house, and where lumber is cheap a small one may be put up at a cost not exceeding thirty dollars.

A CHEAP ICE-HOUSE.

A cheap ice-house may be quickly constructed in the form of board shanties, with a good but not tight floor. Place a few inches of sawdust on the floor, pile up the ice compactly in square blocks, leaving a space of eight to twelve inches all around, next to the boards, to be filled with sawdust, trodden in, as the structure of ice is built upwards. Cover the whole with eight or ten inches of sawdust, and let plenty of fresh air blow through the shanty over the top. Ice will keep in this way as well as in the most costly and elaborate building. Chaff or finely cut straw may be substituted for the sawdust; but being less perfect non-conductors should be in thicker layers. Care should be taken that all the sawdust be pressed solid, and no cavities left.

OUT DOOR ICE-HOUSE.

The *Southern Homestead* says: A correspondent—one of the inventive men of the day—kept ice out of doors, and had a plenty to spare last September. He threw down four foot wood upon a space eight feet square, sufficient to keep ice from the ground. The spaces between the sticks were filled with sawdust or tan bark. The ice was then packed snugly in pyramidal form. To make the mass more compact in order to keep the air from it, a few pails of water were thrown over it. The mass was then covered with sawdust. We are inclined to think ice will keep in this way better than any other. The evaporation from the outside carries off the heat, and the mass keeps cooler than it would if shut up in a tight house. There appears to be philosophy in the method.

A NOVEL ICE-HOUSE.

The Winsted (Ct.) *Herald* gives this account of the manner in which Mr. Goodwin of New Hartford fills his ice-house: Mr. Goodwin is supplied with excellent water from a spring at a considerable elevation above his house. Connected with a pipe which supplies the latter is a branch pipe leading to the ice-house, across which it is extended. Within the ice-house this pipe is pierced by twenty or thirty small holes, from which as many fine jets of water rise to the roof, falling back in drops over the whole bottom surface of the house. These jets are only let on when the weather is cold, and the doors and ventilators being open, the water freezes as it falls, and in a few days, or weeks at furthest, the house is filled with a single block of pure, transparent ice. Mr. Goodwin's ice keeps through the entire season, with much less waste than that packed in the ordinary way. It costs him nearly nothing.

FILLING ICE-HOUSES WITH SNOW.

There are many who would like the luxury of ice during the summer but who live where they can not secure it without great expense, if at all. For their benefit, says H. W. Bleyer, of Buffalo, I would suggest the use of compressed snow. It can be compressed into square blocks suitable for conveyance and packing by any simple contrivance, and will keep as well as ice, without any more than ordinary precaution.

Finding it expensive to haul ice from the neighboring ponds and rivers, a farmer of Clifton, Ohio, last winter filled his house with *snow*, after the custom prevailing in Switzerland and California, simply rolling it up in masses, and with a wheelbarrow conveying it to the house—first lining the sides of the pit with straw, and after it was filled, covering the snow with the same material, thus filling his house without cost, and securing an abundant supply of good ice for his large family during the whole summer. The snow settled down into a compact mass, when the spring and summer heats affected it.

MELTED ICE.

It has been demonstrated that melted ice is as pure as distilled water. During congelation the salts are eliminated. Sea water, when frozen, furnishes pure water on being melted; and in the north of

Europe, salt is economically extracted from sea water by exposing the water to intense cold ; the water which remains unfrozen and unfreezable is then extremely rich in salt, which may easily be obtained by evaporation.

ARTIFICIAL ICE.

A great degree of cold is produced by a mixture of saltpetre and glauber salts.

COOLING MIXTURES.

1. Muriate of ammonia, 5 parts ; nitrate of potash, 5 parts ; water, 16 parts. In such a mixture as this the thermometer sinks forty degrees.

2. Nitrate of ammonia 1 part ; water, 1 part. The thermometer sinks forty-six degrees.

3. Sulphate of soda, 5 parts ; dilute sulphuric acid, 4 parts. The thermometer falls forty-seven degrees.

With the use of ice or snow, other mixtures may be made in which the thermometer will fall fifty degrees below zero ; but we have given those which may be employed when snow or ice cannot be obtained. The salts for these mixtures should be fresh, dry, and reduced to a powder before being used. The vessel in which they are dissolved should be thin and a good conductor.

PAINTS AND PAINTING.

NEVER suffer a painter to use unboiled oil upon any of your buildings or farm implements, and certainly never suffer yourself to leave any of them unpainted. Take care that the painter is not too liberal in the use of "driers" in your paint. Tint is to please the eye. Oil preserves the wood, and one coat of boiled oil is worth three of unboiled. A good paint for outbuildings and fences is cheaply made of powdered water lime and oil. It will answer if mixed with cheap oil.

S. D. Welsh, of Wyandott Co., Ohio, writes to the *American Agriculturist* as follows : In opening a keg of white lead, break the head in with a hatchet, or, if it is desired to save the head, with an old

chisel extract the tacks from the upper hoops, drive them up, take out the head and replace the hoops. The paint-can may be a tin pail or an old oyster can, with a strong wire bail and a wire hook attached, by which to hang it to the ladder. With a strong paddle take from the keg and put into the can enough lead to one-third fill it; pour oil enough over the lead to about cover it, and mix them thoroughly; after this oil is well incorporated with the lead, fill the can with oil, putting in a little at a time, and stir constantly while adding. When ready to apply, the paint should be about the consistence of rich cream. It should be tried on some inferior part at first and made thicker or thinner, as needed. If too thick, it will not work right under the brush, but incline to be sticky or tough. If too thin, it is apt to run, has a yellowish hue and is too transparent. For outside work use a large brush, with a smaller one to work about windows and other corners. When not in use, keep all brushes in oil, or well cleansed from paint, or they will dry up and spoil. In commencing, take a course of boards, as many as can well be reached, and brush their whole length. Do not leave off painting long enough for the work to dry, until the course is finished. If obliged to suspend the work, leave off about a window, door, or corner. Use boiled oil, and never finish outside work in very hot weather.

For outside, the paint for first coats should be thinnish, the second made thick, and the third thicker than the first, but thinner than the second. For inside work there are different methods. It is safe, as a general rule, to use equal parts of naptha and Japan varnish as a vehicle with which to mix the pigments. Naptha is used as a substitute for turpentine, which is now very expensive. It is a poor "drier." Japan varnish and turpentine are quick driers. Oil is a slow drier, but dries more rapidly when boiled. If the paint is drying too fast while applying it, add more naptha or a little oil.

Positive colors, such as blues, reds, &c., are seldom if ever used on inside work, but a great variety of tints are produced by mixing these with white. For *straw color*, use yellow ocher with white; for *flesh color*, chrome yellow and a little red with white. *Gray* is made by adding to the white a very little black. Red and black make *brown*. Be very careful in mixing colors with black, or the desired tint may be neutralized. If *dry* colors are used with white, they should always be rubbed up with a little naptha or turpentine before mixing. Make experimental trials for desired tints upon short boards, noting each time the proportions of color used. After the first coat is dried hard it is to be rubbed down with sand-paper, laid under a little

block, before applying the next coat. If the work is to be varnished, use Dammar varnish for all light colors.

A *bright red*, may be made of red lead ; and a red of a *darker* shade, of Venetian red.

The best *light yellow*, is made of chrome yellow, and a *darker* and inferior color, but *very much cheaper* of yellow ocher.

Lead color is made of white lead, with a very small portion of lamp-black added.

Slate color, same as the lead color, with the addition of a little blue.

Green may be made of *various shades*, by mixing in different proportions, either of the yellow above mentioned with Prussian blue, or strong and handsome greens may be purchased in the form of Chrome green and Brunswick green.

A *very dark blue*, approaching black, is made of pure Prussian blue, and any shade of lighter blue by the addition of white lead in different proportions.

For *white*, use pure white lead.

A cheap *brown* may be made from Spanish brown, and browns of various shades from mixtures of black and red.

A warm *stone* color may be made of Venetian red, with the addition of a little white ; and a colder shade is given by adding lamp-black and more white.

For *black* use best calcined lampblack.

Either of the above should be mixed with sufficient linseed oil to enable them to be easily ground, and then thinned with spirits turpentine to a proper consistence for use.

BEST TIME TO PAINT HOUSES.

Experiments have indicated that paint on surfaces exposed to the sun will be much more durable if applied in autumn or spring, than if put on during hot weather. In cool weather it dries slowly, forms a hard, glossy coat, tough like glass, while if applied in warm weather, the oil strikes into the wood, leaving the paint so dry that it is rapidly beaten off by rains.

A correspondent of the *Scientific American* says : When paint has been exposed to a hard frost before it is fully dry, its lustre and durability are destroyed. Paint a house outside not earlier than the middle of May nor later than the middle of September in this latitude. Boiled linseed oil should always be used, for various reasons, one of which is that it *dries quicker*, and consequently forms a cement

upon the *surface*; is sooner out of danger from dust and flies, and will last longer. A little good coach-varnish in the last coat of paint for outside work, will be found a very good investment.

CHEAP PAINT FOR BUILDINGS.

One bushel slacked lime. Half a gallon salt. Three pounds alum, powdered. Three pounds saleratus. Mix and put in a tight barrel with one head out. If the lime is quite fresh, cold water—if not then use hot water. Keep stirring while slacking, adding water as required, so as not to become dry at any time. If it heats dry it becomes lumpy, and must not be overflowed with water so as to prevent the slacking going on. Stir up well from the bottom. When finished, it may be thick as mush. When to be applied by a brush, make the mixture the consistency of whitewash—about the thickness of cream. Apply the first coat very thoroughly, filling every crack or interstice between the bricks or in the boards. For wooden fences a second coat of the same material is all that is required. Those who desire to have some other color than white, can add coloring matter to taste.

FOR BRICK HOUSES.—For the second coat, add to the first named materials twelve pounds of melted tallow, and mix as before. This coat is impervious to water—is brighter, looking clean longer than paint, and preserves the cement between the brick better than paint. It costs but little to renew this, say once in three or four years. The only difficulty is in mixing the materials properly.

ANOTHER CHEAP PAINT.—Make a thin paste of wheat or rye flour—strain it, add sufficient Venetian red or ocher to make a thick paint—put on one or two coats. Dissolve one pound of glue in three gallons of water—mix in your paint, and put on for the last coat. It is claimed that it will look as well as oil paint.

Another.—A pretty good cheap paint for outside work is made by mixing plaster of Paris with white lead, or zinc white, and grinding them together in a paint mill with oil. Plaster alone may be used, and it is said to form a durable and cheap paint. Of course any color may be given which is desired.

Another.—Water lime mixed with skimmed milk is said to make an excellent drab colored paint. It will adhere to wood, stone, brick or mortar, where oil paint has not been used, and is very hard and durable.

Another.—Take one bushel of unslacked lime and slack it with cold

water; when slacked, add to it 20 lbs. of Spanish whiting, 17 lbs. of salt, and 12 lbs. sugar. Strain this mixture through a wire sieve, and it will be fit for use after reducing with cold water. This is intended for the outside of buildings, or where it is exposed to the weather. In order to give a good color, three coats are necessary on brick and two on wood. It may be laid on with a brush similar to whitewash. Each coat must have sufficient time to dry before the next is applied.

For painting inside walls, take as before one bushel of unslacked lime, 3 lbs. of sugar, 5 lbs. of salt, and prepare as above, and apply with a brush.

For brick it is claimed by some good authorities to be better than oil paint. On wood it is said to last longer on rough siding, than oil paint on planed.

You can make any color you please: for straw color, use yellow ocher instead of whiting; for lemon color, ocher and chrome yellow; for lead and slate color, lampblack; for blue, indigo; for green, chrome green. The different kinds of paint will not cost more than one-fourth as much as oil paints, including labor of putting on.

Another.—This is by some considered very valuable. Skimmed milk, 2 quarts; fresh slacked lime, $6\frac{1}{2}$ ounces; linseed oil, 4 ounces; common whiting, 3 pounds. Put the lime into a stoneware vessel; pour upon it sufficient of the milk to make it like thin cream; add the oil, a little at a time, stirring to mix thoroughly; add the remainder of the milk; then the whiting, made fine, is to be spread upon the surface, and the whole well stirred. It is then fit for use. It should be frequently stirred while using. Apply with a common paint or whitewash brush. It will dry in three or four hours. Two coats are sufficient. It possesses great solidity, will bear rubbing with a woolen cloth, and does not become dingy or yellow with smoke, &c., as much as lead paint, and is much more economical.

For out-door work add to the foregoing 2 ounces lime, 6 ounces oil, and 2 ounces white Burgundy pitch, the pitch to be melted in the oil by gentle heat, and added to the mixture.

ANOTHER CHEAP SUBSTITUTE PAINT.

Take one pound of fresh burnt lime, and slack it by dipping it in water and allowing it to break down in the open air. Take four ounces of Burgundy pitch, and dissolve it by a gentle heat in twelve ounces of linseed oil; put the newly slacked lime, while hot, into a

bucket, and add thereto a gallon of skimmed milk in a hot state ; then add the mixture of pitch and oil, a little at a time, stirring it until it is all thoroughly mixed ; and, lastly, mix with the whole, six pounds of powdered whiting.

When applying this paint, stir it frequently to prevent it settling. This will make a dead white ; but where color is required, it may be easily obtained by using with the whiting powdered amber, yellow or red ochers, chromes, blues, &c., ground in milk, and mixing in such color and in such quantities as may be requisite to produce the tint that is desired. In using this milk paint, should it become too thick, then it might be thinned by adding a little more skimmed milk. Sour milk must not be used.

This of course is not equal to oil paint, but when properly applied, it covers the wood evenly, and looks neat, does not scale off, and will keep good for three years.

VERY CHEAP PAINT—DRAB COLOR WITHOUT LUSTER.

Mix water lime with skimmed milk to a proper thickness to apply with a brush, and it is ready for use. It will adhere well to wood, whether smooth or rough, to brick, stone or mortar, where oil paint has not been used. Try it.

CHEAP PAINT FOR OLD BUILDINGS

Take some fine oil meal, mix it with cold water, then put it on the stove and keep stirring till it boils. Then reduce it to the desired thickness with warm water. If you wish it white, stir in whiting, or any color you like. Apply with a brush the same as paint. It fills the pores in the wood, so that after two coats it will cost no more to paint an old building than it would a new one. It penetrates the wood, and does not peel off like white-wash. It is never safe to paint over white-wash. It will last a number of years, as the oily nature of the meal keeps it from washing.

COMPOSITION TO LAY ON A BOARDED BUILDING TO RESIST THE WEATHER AND LIKEWISE FIRE.

Take one measure of fine sand, two measures of wood ashes, well sifted, three of slacked lime, ground up with oil, and mix them together ; lay this on with a brush, the first coat thin, the second thick.

This adheres so strongly to the boards covered with it that it resists an iron tool, and the action of fire, and is impenetrable by water. On the authority of the celebrated Count Rumford.

TO COLOR CONCRETE HOUSES.

No vegetable or animal matter should be used for this purpose, for they lack durability; but the pigments used should consist of mineral substances that have the required color. They may be dissolved in the water used in preparing the mortar for an outer coating, or they may be dissolved in lime water, and put on with a brush. This should be done before the wall is dry, or if the latter is already dry, it should be thoroughly wet with clear water, or with lime water, which is better. For gray in shades, use blue-black; for blue, blue vitriol or blue verditer; for green, mineral green, or blue verditer and chrome yellow; for yellow, yellow ocher or green vitriol. If chrome yellow is used, it must be with care, or scarlet specks will occur. Yellow can also be produced by iron rust, which may be obtained by putting iron chips or filings in lime water. Red ocher, Venetian red, Indian red, purple brown, Vandyke brown, raw and burnt umber are good, and vermilion is more beautiful than when used with oil.

COAL TAR FOR PAINTING.

It is cheap, durable, and looks well for old buildings, especially if painted with white around the doors and windows, the barge boards and corners of the building, with white lead. The tar needs no preparation. Use it just as it comes in the barrel, cold, putting it on with a large round brush.

FIRE-PROOF PAINT AND WASH.

In Russia very little turpentine or varnish is used in paints. The curd of milk mixed with pigments is used; it is more durable and less dangerous on account of fires. A very excellent fire-proof wash for outside buildings is made of clay stirred up in water containing about one ounce of potash for every five gallons. This wash is excellent for the boiler rooms of steamboats.

SUBSTITUTE FOR PAINT OVER PLASTER.

A coat of oxide of zinc, mixed with size, and made up like a wash, is first laid on the wall, ceiling or wainscott; and over that a coating of chloride of zinc, prepared in the same manner as the first wash, is applied. The oxide and chloride immediately effect a sort of combination, forming a cement, smooth and polished as glass, and possessing the advantage of oil paint without its disagreeable odor. Discovered recently by a Frenchman.

DURABLE AND CHEAP PAINT FOR HOUSE FLOORS.

Dissolve one ounce glue in a quart of warm water, thickened with paint. After being put on, go over with a coat of boiled linseed oil. It will dry ready for use in two hours.

PAINT FOR STOPPING CRACKS.

White lead paint, thickened by mixing in fine clean sand—increasing the thickness according to size of crack.

A FLEXIBLE PAINT FOR CANVASS.

Stir into fifty-six pounds of common oil paint a solution of soap lye, made of half a pound of soap and three pounds of water; it must be used while warm.

PAINTS FOR IRON.

The editors of the *Scientific American* say that from their own experience they consider red lead the most durable paint for iron exposed to water. A coating of asphalt, thoroughly dried upon iron pipes in an oven, is the best protective agent for the metal when buried in the damp soil.

A cheap and durable green paint for iron rails and coarse wood work is made of gas tar with yellow ocher.

A BLACK COLORING FOR GARDEN WALLS.

Mix quicklime, lampblack, a little coperas, and hot water.

WHITEWASHES, & C.

COMMON lime quickly and perfectly absorbs carbonic and other disagreeable and unhealthy gases and odors; and for this purpose, in times of plagues, epidemics, and wasting diseases, is scattered plentifully in cellars, privies, stables and gutters of the streets. It not only purifies the air and promotes physical health, but as a whitewash enlivens and beautifies wherever applied. As it is easily washed off by the rain if not properly prepared as a wash, it has to be so frequently re-applied that it is considered troublesome by many; hence the rich use paint, and the poor use nothing to protect their dwellings, fences, etc., from the ravages of the weather; yet the difference between a well-whitewashed farm and one where no lime is used, would amount to a large percentage in case of a sale. For the physical and moral benefits which may arise from the abundant use of lime as a whitewash, several modes of preparing it, so as to make it more durable, whether applied indoors or out, are here given, with the suggestion that the same amount of money necessary to keep a man's premises well whitewashed cannot be expended to as great a moral and healthful advantage in any other way.

1. One ounce of white vitriol, (sulphate of zinc,) and three ounces of common salt to every four pounds of good fresh lime, that is, lime which has not fallen into dry powder from exposure to the atmosphere, with water enough to make it sufficiently thin to be applied with a brush, makes a durable outdoor whitewash.

2. Take a clean water-tight barrel, or other wooden cask, and put into it half a bushel of lime in its rock state, pour enough boiling water on it to cover it five inches deep, and stir it briskly until it is dissolved or thoroughly slacked, then put in more water and add two pounds of sulphate of zinc—that is, white vitriol—and one pound of common salt; these harden the wash and prevent cracking; this may be colored according to taste by adding three pounds of yellow ocher for a cream color; four pounds of umber for a fawn color, with a pound each of Indian red and lampblack; four pounds raw umber and two pounds lampblack for a common stone color; lamp, vine or ivory black for pearl or lead color.

3. Mix up half a pail of lime and water ready for whitewashing; make a starch of half a pint of flour and pour it, while hot, into the lime water while it is hot. This does not rub off easily.

4. A good indoor whitewash for a house of six or eight rooms is

made thus : Take three pounds of Paris white and hot water, then add the dissolved glue and sufficient water to make it of the proper consistence for applying with a brush. If any is left over, it hardens by the morning, but it may be dissolved with hot water ; still it is best to make only enough to be used each day ; spread it on while it is warm.

It is said to add to the value and lastingness of any lime wash if the vessel in which it is slacking is kept covered with a cloth ; this not only confines the heat, but keeps the very finest of the particles of lime from being carried off by steam, wind, or otherwise.

When it is taken into account how much buildings and fences are protected against the destructive influences of the weather, if they are plentifully whitewashed in April and November, to say nothing of the cheeriness, beauty, and purity which it adds to any dwelling, it is greatly to be desired that the practice of whitewashing liberally twice a year should be adopted by every household in the nation, where paint cannot be afforded, and on every farm.

5. The editor of the *American Agriculturist* recommends for cellars a simple mixture of fresh slacked lime as the best. For house rooms, he says, the common "Paris white," to be bought cheaply, is very good. We take for each two pounds of whiting, an ounce of the best white or transparent glue, cover it with cold water over night, and in the morning simmer it carefully without scorching, until dissolved. The Paris white is then put in hot water, and the dissolved glue stirred in the hot water, enough to fit it for applying to the walls and ceilings. This makes a very fine white, so firm that it will not rub off at all. When common fresh slacked lime is used, some recommend adding to each two and a half gallons (a pailful) two table-spoonfuls of salt and one half pint of boiled linseed oil, stirred in well while the mixture is hot. This is recommended for outdoor and indoor work. For an outdoor whitewash, take a tub, put in a peck of lime and plenty of water to slack it. When hot with slacking, stir in thoroughly about one-half pound of tallow or other grease, and mix it well in. Then add hot water enough for use. The compound will withstand rain for years.

6. The editors of the *Country Gentleman* give the following : Take a barrel and slake one bushel of freshly burned lime in it, covering the lime with boiling water. After it is slaked, add cold water enough to bring it to the consistency of good whitewash. Then dissolve in water and add one pound of white vitriol, (sulphate of zinc,) and one quart of fine salt. To make this wash of a handsome gray

stone color, add half a pound of French blue, and one-fourth pound of Indian red; a drab will be made by adding a half pound of burnt sienna, and one-fourth of a pound of Venetian red. This wash owes its durability chiefly to the white vitriol, which hardens and fixes the wash.

A WHITEWASH THAT WILL KEEP.

This is from the *Scientific American*: If whitewash, made of lime and water, is brought in contact with carbonic acid, the lime enters into combination with the acid, forming carbonate of lime. Water usually contains carbonic acid, for if brought in contact with carbonic acid gas it absorbs its own bulk of the gas. When whitewash is made, therefore, a portion of the lime is immediately converted into carbonate of lime. The water being thus freed from its carbonic acid, gradually absorbs a fresh supply from the atmosphere and the process of converting the lime into carbonate continues. This carbonate of lime is not adhesive, and its mixture in the whitewash impairs the quality of the wash. In order to make a whitewash that will keep, the carbonic acid should be expelled from the water before the lime is introduced, and the wash should then be excluded from the atmosphere. The acid may be expelled by boiling the water, and it may be prevented from returning by keeping the whitewash in a tightly corked bottle.

THE BEST WHITEWASH.

Mr. Uriah Ritchie, well known in Boston as a master builder, and one of the owners of the immense building in New York in which are located the offices of the *Scientific American* establishment, gives to that excellent paper the following. Mr. Ritchie is a practical and successful mechanic in the broadest sense, and after forty years experience at mason-work, and after having made a great many experiments in the art of preparing whitewashes, he comes to the following conclusion:

First—For rough outside walls—those exposed to the weather—the best mixture is clear lime and water. Any animal or vegetable substance added diminishes the adhesion and durability of the wash.

Second—But if the wall is hard and smooth, the wash is improved by a mixture of very fine sand—as much as will mix and can be applied.

Third—For inside walls an addition of a little glue—say a quarter of a pound to three pailfuls—increases the adhesion. If it is desired to have the walls very white the whites of eggs may be used in the place of the glue.

WASH FOR BUILDINGS.

Parts of the Palace at Westminster, England, which were fast going to decay, have been restored by the application of the silicate of soda solution, washed after drying, with dilute muriatic acid, so as to render the soda soluble, when it washes off with rains, &c., leaving behind it an indestructable coating of pure silica or flint, on which not even the hardest scrubbing with wire brushes and water makes any impression. Applied to iron in a somewhat similar way, it forms a coating that will preserve the metal from rust. The roofs of the Clock and Victoria Tower, to which it has been applied, are bright and clean as when emerging from the foundry. It adheres to a metal surface so tenaciously that in attempting to remove it the chisel chips off the iron with it. It appears to be indestructible by the elements, and is uninjured by long immersion in sulphuric acid.

ANOTHER WHITEWASH FOR BUILDINGS.

At a recent meeting of the New York Farmers' Club, Solon Robinson recommended a durable wash as follows: Slake one bushel of good lime and make it into whitewash by adding forty gallons of water—also add twenty pounds of Spanish whiting, seventeen pounds of salt, and twelve pounds of sugar. He stated that the whiting is for coating the surface, the salt making it penetrate the wood, and the sugar to render it adhesive. This is doubtless a good wash for interiors, but we question if it is so well adapted for out-door work, or where constantly exposed to rains and weather, as some other applications. After trying many, we have found the following the best: Mix three pecks of good fresh water lime with one peck of very fine and clean sand and half a peck of salt. Add water enough to make a good wash, and apply with a brush, stirring it frequently. A single coat will last several years, especially if applied to rough boards. There is no kind of wash, however, and probably never can be, that is equal in durability and perfection to oil paint, through which water can never pass, while all the different washes are soaked through by every long rain. The lime, however, penetrating the pores of the wood,

greatly increases its durability, and if occasionally repeated when needed, is scarcely inferior in this respect to oil paint.

Another has recommended as follows: Take half a bushel of rock lime; slack it with boiling water; cover it during the process to keep in the steam. Strain the liquid through a fine sieve, and add to it a peck of salt, previously well dissolved in warm water; three pounds of ground rice, boiled to a thin paste and stirred in boiling hot; half a pound of powdered Spanish whiting, and a pound of clean glue, which has been previously dissolved by soaking it well and then hanging it over a slow fire, in a small kettle within a large one filled with water. Add five gallons of hot water to the mixture, stir it well, and let it stand a few days, covered from dirt. It should be put on hot. For this purpose it can be kept in a kettle on a portable furnace. About a pint of this mixture will cover a square yard on the outside of a house, if properly applied. It answers as well as oil paint for wood, brick or stone, and is cheaper. It retains its brilliancy for many years. There is nothing that will compare with it, either for inside or outside walls.

When walls have been badly smoked, and you wish to have them a clear white, it is well to squeeze indigo plentifully through a bag into the water you use, before it is stirred in the whole mixture.

BLEACHING AND STAINING WOOD.

Bleaching Wood.—Wood may be bleached white, like cotton cloth or paper pulp, by exposing it to the action of warm chlorine liquor or to chlorine gas, when moist.

To Stain Wood Red.—Take one pound of Brazil wood to one gallon of water, boil three hours, with one ounce of pearlash, brush it hot on the wood and while hot brush the wood with a solution made with two ounces of alum in one quart of water.

To Stain Wood a Beautiful Blue.—Dip the wood in a hot solution of sulphate of indigo, and then while hot place it in a solution of three ounces of cream of tartar to a quart of water.

To make Blackboards.—An appliance for blackboards can be made by boiling one pound of logwood in water enough to cover it, and adding half an ounce of green vitriol. This is superior to paint, as it stains the wood, and will not wear off, dries in a few minutes, and bears no gloss.

Hard wood is dyed jet black to resemble ebony with a strong warm solution of logwood and the acetate of iron.

Yellow Stain.—A decoction of turmeric and a little alum, or the grounds of beer and a little sulphuric acid, make yellow stains on white wood. Dilute nitric acid brushed over white wood, then exposed to the heat of a stove, also makes a yellow stain; this is the most convenient one for imitating maple.

Rosewood Stain.—This is made of a strong solution of logwood and redwood, commonly called *hypernic*. It is put on the wood when hot with a brush, the dark lines being produced by giving two or three coats, and the light shades one. By washing over the surface of this stain with a weak solution of salaratus, it will receive a bluish tinge and appear of a darker shade. When dry, use any kind of varnish for the production of a polished surface.

Mahogany Stain.—The color of mahogany may be imitated with a strong solution of logwood and fustic put on boiling hot with a brush. The color can be reduced to any depth of shade according to the strength of the liquor employed. After it is quite dry, the wood should be varnished and afterward polished. A varnish made with dragon's blood dissolved in alcohol, and applied in two or three coats will make a very good imitation of mahogany. When dry it should be rubbed down with rotten-stone and oil.

Imitation of Mahogany.—Plane the surface smooth, and rub with a solution of nitrous acid. Then apply with a soft brush one ounce of dragon's blood, dissolved in about a pint of alcohol, and with a third of an ounce of carbonate of soda, mixed and filtered. When the brilliancy of the polish diminishes, it may be restored by the use of a little cold drawn linseed oil.

To Darken Mahogany.—Drop a nodule of lime in a basin of water and wash the mahogany with it.

Imitation of Black Walnut.—Let the surface of the wood, after being thoroughly sandpapered, be washed with weak alum water, and then treated with linseed oil colored by burnt umber and red lead. The umber should be thoroughly burned, but the coloring matter not made too strong. It is better to have it rather light, and renew the application. When this has sufficiently dried, go over the surface with a strong sizing of glue, (transparent,) and then use two coats of good copal varnish. Treated thus, any good grained pine will bear a very close resemblance to walnut, and the surface is nearly as hard.

Scarlet Color on Wooden Figures.—Boil a little of best carmine with distilled water for four or five minutes in a glass or porcelain

vessel, then add gradually some aqua ammonia, boil a little longer, then cool. The wood must be left immersed in this liquor for some time.

Staining Wood and Ivory.—*Yellow.*—Dilute nitric acid will produce it on wood.

Red.—An infusion of Brazil wood in stale urine, in proportion to a pound for a gallon for wood; to be laid on when boiling hot, and should be laid over with alum water before it dries; or a solution of dragon's blood, in spirits of wine may be used.

Black.—Strong solution of nitric acid for wood or ivory.

Mahogany.—Brazil, madder and logwood, dissolved in water and put on hot.

Blue.—Ivory may be stained thus: Soak in a solution of verdigris in nitric acid, which will turn it green; then dip it into a solution of pearlash boiling hot.

Purple.—Soak ivory in a solution of sal-ammoniac into four times its weight of nitrous acid.

To Blacken Brass.—The cheapest and quickest way is to coat it with black shellac varnish.

VARNISHES, LACQUERS, BRONZES, &C.

Black Varnish for Leather.—Gum shellac, 1 ounce; gum juniper, 1 ounce; lampblack, 1 ounce; rosin, 1 ounce; Venice turpentine, $\frac{1}{2}$ ounce; spirits of wine, 1 pound. Mix and let it stand in a warm place for a few days.

Black Varnish for Flexible Surface.—Asphaltum, in coarse powder, 24 ounces. Macerate in a flask for a day or two, with frequent shaking, in 21 fluid ounces of benzine. Decant the clear solution, and mix it with that of one or two ounces of manilla elemi, and one ounce of balsam copaiba in sufficient benzine; if necessary add more benzine to get the proper consistence.

To Make Black Japan Varnish.—Pitch, 50 pounds; dark gum amber, 8 pounds. Melt this, and add linseed oil, 12 gallons. Boil this and add 10 pounds more gum amber, previously melted and boiled with two gallons of linseed oil; 7 pounds each of litharge and red-lead, and boil for two hours, or until a little of the mass can be rolled into pills, then withdraw the fire and thin the varnish as required for use with turpentine.

Black Varnish. Pattern, Wood, and Iron Varnish. One pound of gum asphaltum, $\frac{1}{4}$ pound of gum benzine; put both into a can or jug with 1 gallon of benzole, and let stand until they dissolve, Then add 1 pint of linseed oil, and it is ready for use. To have it clear, leave out the asphaltum, and for patterns leave out the oil, and to change the color add any color you wish, and mix with the clear varnish.

White Varnish.—Take 1 ounce of pure Venice turpentine; mix well with 2 ounces of pure spirits of turpentine; warm in a large bottle. In another bottle put 4 ounces of best fir balsam, (it must be pure,) with 2 ounces of 95 per cent. alcohol; shake each bottle well frequently for six hours or more, then mix both preparations in the large bottle. The whole should stand several days before using in a warm place.

Laing's Colorless Varnish.—The British Society of Arts awarded a premium of twenty guineas for this varnish: Dissolve two ounces and a half of shellac in a pint of rectified spirits of wine, boil for a few minutes with five ounces of well burnt and recently heated animal charcoal. A small portion of the solution should then be filtered, and if not colorless, more charcoal must be added. When all color is removed, press the liquor through a piece of silk, and afterwards filter through fine blotting paper. This kind of varnish should be used in a room at least sixty degrees Fahrenheit, perfectly free from dust. It dries in a few minutes, and is not liable afterwards to chill or bloom. It is particularly applicable to drawings and prints that have been sized, and may be advantageously used upon oil paintings which are thoroughly hard and dry, as it brings out the colors with the purest effect. This quality prevents it from obscuring gilding, and renders it a valuable varnish for all kinds of leather, as it does not yield to the warmth of the hand, and resists damp, which subjects leather to mildew. Its useful applications are very numerous, indeed to all the purposes of the best hard-spirit varnish.

Lac Varnish.—A common lac varnish may be made by digesting four ounces of clear-grained lac in a pint of spirits of wine in a wide-mouthed bottle, keeping it in a warm place for two or three days, and occasionally shaking it. When dissolved, strain through flannel into another bottle for use.

Picture Varnish.—Clear spruce balm dissolved in alcohol makes a good varnish for pictures. Most varnish makers add some white gum mastic and gum sandarac to it.

Varnish for Water Color Paintings.—Every one knows that the

common practice of covering colored drawings with glass, when framed and hung up, destroys much of the fresh and brilliant expression of the picture. The following simple varnish answers all the desired purposes of protection, and admits of the washing of the picture with cold water at any time. We have tried it, and it has stood more than thirty years as good as when new.

First, moisten the picture carefully by passing a wet sponge over its back, to expand or enlarge it; next spread it smoothly on a simple square frame, made on purpose to keep it stretched, and secure it to this frame by pasting around the outer edges. It will then dry and draw tight, like a drum. It must not draw too tight, or it will crack—hence the moistening should be moderate (but thorough.) Next take an ounce of Canada balsam and two ounces of spirits of turpentine, and mix them well together. This forms the varnish. Size the picture well with a solution of izinglass in water—if not well sized, the varnish will strike through and spoil it. When dry, apply the varnish with a camel's hair brush, passing it lightly over, so as not to disturb the colors.

The only skill required in this process, is to sponge the picture evenly; to stretch it enough to make it smooth and light, and not too tight, so as to crack the paper; and, lastly, to avoid washing off any of the color in sizing and varnishing. It is not at all difficult, only requires moderate care.

Pencil drawings may be preserved from rubbing out or chaffing, by simply applying a *thin* coat of gum Arabic, with a camel's hair brush.

Best Clear Varnish for Maps, Drawings, &c.—Canadian balsam, dissolved in rectified oil of turpentine. The balsam should be placed in the turpentine and set aside in a moderately warm place, and agitated occasionally for about seven days. A varnish made with pale mastic dissolved in alcohol, is used to fix pencil drawings.

Amber Varnish.—No. 1. Amber, pale and transparent, 6 pounds; fuse, add hot clarified linseed oil, 2 gallons; boil it till it strings strongly, cool a little, and add oil of turpentine, 4 gallons. Pale as copal varnish; soon becomes very hard, and is the most durable of oil varnishes, but requires time before it is fit for polishing. When wanted to harden and dry quicker, “drying” oil may be substituted for linseed, or “dryers” may be added during the boiling.

No. 2. Amber, 1 pound; melt, add Scio turpentine, $\frac{1}{2}$ pound; transparent white resin, 2 ounces; hot linseed oil 1 pint, and afterwards oil of turpentine q. s., very tough.

No. 3. *Hard*.—Melted amber four ounces, hot boiled oil one quart.

No. 4. *Pale*.—Very pale and transparent amber four ounces, clarified linseed oil and oil of turpentine, of each one pint.

Another.—Melt sixteen ounces of amber in an iron pot, then add two ounces of melted lac, and ten ounces of hot, drying linseed oil; incorporate the whole by stirring; remove it from the fire, and before it cools add a pint of warm oil of turpentine.

Crystal Varnish.—First, genuine pale Canada balsam and rectified oil of turpentine, equal parts; mix; place the bottle in warm water, agitate well, set it aside in a moderately warm place, and in a week pour off the clear. Used for maps, prints, drawings, and other articles of paper, and also to prepare tracing paper and to transfer engravings. Second, mastic three ounces, alcohol one pint, dissolved. Used to fix pencil drawings.

Japanees Varnish.—1. Copal four pounds, melt in glass mattress, till any water attached to it is evaporated; pour in boiling linseed oil one pint, take the mattress from the fire, and mix the varnish, while hot, with about its own weight of oil of turpentine. 2. Copal seven pounds, melt, and when melted, add half a gallon of linseed oil; boil for five minutes, then remove it to the open air; add boiling oil of turpentine three gallons; mix and strain. This dries in fifteen minutes.

Water Proof Varnish.—Naptha and benzole dissolve india-rubber rapidly; and make a water-proof varnish that dries much sooner than a varnish made with india-rubber and turpentine.

Black Asphalt Varnish.—Take asphaltum two pounds, fuse in an iron pot, add of hot boiled oil one pint; mix well, remove the pot from the fire, and, when cooled a little, add oil of turpentine two quarts. Used to black and polish grates and iron work.

A good black varnish for Iron.—Take eight pounds of asphaltum and fuse it in an iron kettle, then add two gallons of boiled linseed oil, one pound of litharge, one half pound of sulphate of zinc (add these slowly or it will fume over,) and boil them for about three hours. Now add one and a half pounds of dark gum amber, and boil for two hours longer, or until the mass becomes quite thick when cool. After this it should be thinned with turpentine to the proper consistency.

Black Varnish for Coating the front sight of Rifles.—Mix lampblack with thin lack varnish. The latter should be made with alcohol.

Varnish for Iron.—A very cheap and good black varnish for iron work, such as railings exposed to the weather, may be made with two pounds of asphaltum and coal tar boiled for about five hours with

eight gallons of linseed oil, and ten pounds of litharge. It should be thinned down with coal oil and turpentine to use it with a brush.

Varnish for Iron Chains.—The best varnish for iron chains is made of pure linseed oil well boiled and rendered quick drying by adding some litharge—about four ounces to the gallon. Color it black by adding some lampblack and a little asphalt. When resin is added to oil it renders it more liable to scale off. The chains should be thoroughly dried in a hot room before they are used.

Varnish for Coarse Castings.—Refined heavy petroleum mixed with coal tar and applied warm.

Varnish for Rough Castings.—A varnish made of asphalt dissolved in quick-drying linseed oil is the best for putting on rough castings. It will not readily soften with oil if it is allowed to dry perfectly.

Varnish for Polished Metal.—White lac dissolved in alcohol is good, but will not stand much exposure to the weather. The varnish can be made into good lacquer for brass work, by coloring it with a little turmeric and annato.

Additional Varnishes.—Very superior varnishes are made with a solvent composed of highly rectified alcohol and benzole instead of using, in the common way, alcohol alone. The alcohol should be nearly pure, and equal portions of it and the benzole mixed together. The following are different varnishes made with gum resins and alcohol—benzole solvent:

1. For carriage varnish: Copal twenty-eight ounces, amber eight ounces, anime four ounces, camphor half ounce, solvent one gallon.

2. Varnish for external use: Copal twenty-eight ounces, amber four ounces, anime four ounces, camphor half ounce, solvent one gallon.

3. Furniture varnish: Copal twenty-four ounces, shellac (bleached,) eight ounces, olibanum four ounces, camphor half ounce, solvent one gallon.

4. Picture varnish: Copal twenty ounces, damer twelve ounces, mastic eight ounces, solvent one gallon.

5. White hard varnish: Copal eight ounces, mastic sixteen ounces, sandarac four ounces, camphor half ounce, solvent one gallon.

6. French Polish: Shellac thirty-two ounces, solvent one gallon.

7. Another French Polish: Shellac thirty-two ounces, olibanum four ounces, solvent one gallon.

8. Varnish for prints and maps: Mastic sixteen ounces, sandarac sixteen ounces, Canada Balsam four ounces, solvent one gallon.

9. Varnish for iron (to be applied hot :) Resin twelve ounces, sandarac sixteen ounces, seed lac six ounces, solvent one gallon.

Preparations of lacker :

1. Sandarac twenty-six ounces, shellac six ounces, turmeric six ounces, gamboge one ounce, solvent one gallon.

2. Seed lac eighteen ounces, amber (fused) six ounces, gamboge half ounce, dragon's blood one ounce, saffron half ounce, solvent one gallon.

3. Seed lac eight ounces, copal four ounces, sandarac twelve ounces, turmeric two ounces, aloes one ounce, gamboge one ounce, dragon's blood half ounce, solvent one gallon.

The benzole and alcohol should be previously mixed together in equal parts, and distilled together with seven ounces of caustic lime to each gallon. The gum resins should be reduced to as small pieces as possible before being fed into the solvent.

In making varnish, the gum is melted, then hot linseed oil is poured in, and finally benzine is added. Petroleum benzine is a very poor solvent of the gums used in making varnish, and is apt to separate, but the coal tar benzine is nearly as good as the spirits of turpentine.

Transparent Japan.—Oil of turpentine, four ounces; oil of lavender, three ounces; camphor, one-half drachm; copal, one ounce; dissolve. Used to Japan tin, but quick copal varnish is mostly used instead.

Japanning Old Tea Trays.—First clean them thoroughly with soap and water and a little rotten stone; then dry them by wiping and exposure at the fire. Now, get some good copal varnish, mix with it some bronze powder, and apply with a brush to the denuded parts, after which set the tea tray in an oven at a heat of 212 or 300 degrees until the varnish is dry. . Two coats will make it equal to new.

Pale Lacquer for Tin Plate.—Best alcohol, 8 ounces; turmeric, 4 drachms; hay saffron, 2 scruples; dragon's blood, 4 scruples; red sanders, 1 scruple; shell lac, 1 ounce; gum sanderac, 2 drachms; gum mastic, 2 drachms; Canada balsam, 2 drachms; when dissolved add spirits turpentine, 80 drops.

Good Lacquer for Brass.—Seed lac, 6 ounces; amber or copal, 2 ounces; best alcohol, 4 gallons; pulverized glass, 4 ounces; dragon's blood, 40 grains; extract of red sandal wood, obtained by water, 30 grains.

Lacquer for Philosophical Instruments.—Alcohol, 80 ounces; gum gutta, 3 ounces; gum sandarac, 8 ounces; gum elemi, 8 ounces; dragon's blood, 4 ounces; seed lac, 4 ounces; terra meritta, 3 ounces; saffron, 18 grains; pulverized glass, 12 ounces.

Brown Bronze Dip for Coating Hat Hooks, &c.—Iron scales, 1 pound; arsenic, 1 ounce; muriatic acid, 1 pound; zinc, (solid) 10 ounces. The zinc should be kept in only when the bath is used. The castings must be perfectly clean from sand or grease.

Green Bronze Dip.—Wine vinegar, 2 quarts; verditer green, 2 ounces; sal-ammoniac, 1 ounce; salt, 2 ounces; alum, $\frac{1}{2}$ ounce; French berries, 8 ounces. Boil the ingredients together.

Olive Bronze Dip for Brass.—Nitric acid, 3 ounces; muriatic acid, 2 ounces; add tilanium or palladium; when the metal is dissolved, add 2 gallons pure soft water to each pint of the solution.

To Bronze Gun Barrels.—Dilute nitric acid with water and rub the gun barrels with it; lay them by for a few days, then rub them with oil and polish them with beeswax.

To Bronze Cast-iron.—Clean it thoroughly and dip it into a solution of sulphate of copper. The sulphate of copper is dissolved in water. Or buy bronzing powders of the dealers in paint.

PROTECTING AND PRESERVING WOOD AND IRON.

Water-proofing and Strengthening Wood.—There are many ways of rendering wood durable, hard, strong and impenetrable to liquids, but there seems to be ample room for improvement in this department. Carriage wheels have been made much more durable by saturating them with boiled oil. Rosin, pitch, asphaltum, wax, tallow and other substances have been used to keep out water; petroleum and turpentine have been kept with little waste in barrels prepared with matters that have affinity for water; and creosoting, kyanizing, &c., have been long used to prevent rot. The mummies of Egypt have been preserved thousands of years by asphaltum. This substance is water-proof, and renders wood stronger to resist crushing; it seems capable of useful application in vessels to contain liquids that will not act upon it, or be injured by its flavor. But what is wanted to prepare wood for mechanical use is something analogous to the substance in bones that is strong, yet it must solidify without shrinking. Asphaltum and rosin are too brittle, and give little strength. Glue is strong, but the water in it must evaporate, and then it will not fill the pores. Tough gums, such as shellac, require solvents that must evaporate. And there are objections to most of the substances that are cheap. It is a question for chemists, and one

that offers a great reward to him who most successfully solves it. Wood with its pores completely filled with a substance that can repel water or oil, and that increases its strength, becomes a new material, and may sell at a high price.

A Good Method of Preserving Wood for Fences.—The tar obtained in the manufacture of pyrolygneous acid has been recommended as the best preservative of every kind of wood fence. For this purpose it should be gently heated in an iron pot, and laid on with a brush. It soaks into the wood, and seems to leave "nobody," as the painters express it; but after some days exposure to the sun, the surface and texture of the wood will be much altered, for it will be so hard and impervious that it will be very difficult to make any impression on it. If a second or third coat of the tar be laid on, it will then bear out. When these are dry, if required for ornamental work, it may be painted in oil in the usual manner.

An Application to Preserve Wood in Damp Places.—A coating to preserve wood in damp situations may be made by beating twelve pounds of rosin in a mortar, and adding to it three pounds of sulphur and twelve pints of whale oil. This mixture must then be melted over a fire, and stirred well while it is melting. Ocher of any required color ground in oil may be put to it. This composition must be laid on hot, and when the first coat is dry, which will be in two or three days, a second coat may be given; and a third, if necessary.

To Prevent Posts and Piles from Rotting.—The following coating has been recommended, which is the more suitable since it is economical, impermeable to water, and nearly as hard as stone: Take 50 parts of rosin, 40 of finely powdered chalk, 300 parts (or less) of fine, white, sharp sand, 4 parts of linseed oil, 1 part of native red oxide of copper, and 1 part of sulphuric acid. First heat the rosin, chalk, sand and oil in an iron boiler; then add the oxide, and, with care, the acid; stir the composition carefully, and apply the coat while it is hot. If it be not liquid enough, add a little more oil. This coating, when it is cold and dry, forms a varnish which is as hard as stone.

To Preserve Wood Placed in the Ground.—A very good composition for preserving wood which is to be placed in the ground, and subjected to rapid decay, is made with coal tar, quick-lime, and ground charcoal. The tar is first heated in an iron vessel; then about a pound each of quick-lime and charcoal to every five gallons, stirred among it until the whole has become thoroughly mixed. It

is applied hot with a brush, or the wood may be dipped into it. This preparation resists the attacks of insects.

Another Method to Preserve Telegraph and Fence Posts.—After the post is put in the ground, and the hole filled up to within fourteen inches of the top of the surface, then put about one-half of a bushel of iron chips around the post and fill up with earth two inches above the chips. These chips will soon form a solid mass around the post, which will help to keep it firm and prevent it from rotting. The chips can be had at any machine shop at very little cost.

Soaking Fence Posts and Other Timber in Blue Vitriol.—One pound of blue vitriol to forty pounds of water. If the timber is dry, soak it ten days; if green, six will be sufficient. This solution will do for all kinds of timber requiring exposure to the weather—spouts, shingles, bean poles, stakes, &c. Some use for posts one pound of vitriol to twenty quarts of water.

Petroleum for Preserving Wood.—The oil wells near Prome, in Burmah, have been in use from time immemorial. Wood, both for ship building and house building, is invariably saturated or coated with the product of these wells. The result is entire immunity from decay, and the ravages of the white ants that in that country are so generally destructive. M. Crebin, a Belgian government engineer, who has tried experiments upon the relative advantages of creosote and sulphate of copper for the preservation of timber in marine constructions from the attacks of worms, &c., says that creosoting is the only process he has found to succeed for this purpose. He states that sulphate of copper affords no protection whatever against the action of salt water and marine insects. The Belgian government now requires that all the wood sleepers used in the state railways should be creosoted; and the government of Holland have also made the same resolution, and upwards of 300,000 sleepers per annum are now being creosoted by the Dutch government, and more by the Belgian government.

German Method for Preserving Wood.—The following method is used in Germany for the preservation of wood: Mix 40 parts of chalk, 50 of rosin, 4 of linseed oil, melting them together in an iron pot; then add 1 part of native oxide of copper, and afterward, with care, 1 part of sulphuric acid. The mixture is applied while hot to the wood by means of a brush. When dry it forms a varnish as hard as stone.

Sulphate of copper for Preserving Wood.—It has recently been discovered that sulphate of copper is an excellent preservative of wood.

A weak solution of it is used in the Garden of Plants, Paris, for preserving the mats with which the hot houses are covered.

Preserving Wood by Charring.—Charring the outside of wood that is put into the ground, as the ends of piles, posts, and the wood laid in the foundation of buildings was practiced by the ancient Romans, and is found very effective, as charcoal is perfectly incorruptible.

Coal Tar for Preserving Wood.—Coal tar is much better calculated to preserve outside wood and iron, as well in land as in water, than vegetable tar. The editors of the *Country Gentleman* say: Any wood structure or vessel, not exposed to the sun may be preserved by the use of coal tar better and cheaper than by the use of any other application we know of. For exposure to the sun light colors are desirable.

Protecting Wood with Silicate of Potash.—The silicate of potash renders wood hard and impervious to moisture, if it is washed with dilute muriatic acid after the silicate has become dry.

Protecting Iron and Wood with Oil and Coal Tar.—Some telegraph companies boil the wire they use about fifteen minutes in linseed oil, by which process it receives a coat of glazing which preserves it from rust. The wooden braces of sycamore are boiled one hour in ordinary coal tar to render it secure against warping or cracking from sun or rain.

To Prevent Dry Rot in Timber.—We have been informed that coal tar applied hot to timber having the dry rot, will arrest the decay.

Time to Cut Timber.—It is said that if you cut timber from the middle of September to the middle of December you cannot get a worm into it—that there will be no powderpost. October and November are the best months. Cut from March to June, and you cannot save the timber from worms and borers.

LEATHER, HIDES, FURS, TANNING AND DRESSING.

EFFECT OF AGE ON LEATHER.

THE *Scientific American* says that calf-skin leather, instead of improving in quality with age (as generally supposed,) when made into boots, deteriorates rapidly. It is subject to a species of dry rot, and in the course of three years becomes as tender as brown paper. It

first appears at the edge near the soles, in the form of a black glossy sweat, resembling varnish, gradually proceeding over the whole. Grease rather accelerates than arrests this decay; sole leather endures much longer under constant use than when laid away in a dry situation. Cowskin and kip leather are not thus affected, but the best as well as the poorest calf-skins are subject to it.

A PREPARATION FOR PRESERVING LEATHER.

We translate from the *Gerber Courier* a receipt for a preparation which is said to insure great durability to leather, and to make it very pliable and soft. It consists of four articles, tallow, soap, resin, and water. These ingredients are prepared as follows: twenty-one parts of tallow are melted in a vessel, three parts of resin added, and the two when melted mixed well together. In another vessel seven parts of good washing soap are dissolved in seventy parts of pure rain water. After it is dissolved and the mass heated to the boiling point, we add the part prepared before; let it boil once more gently, and the preparation is ready for use. It is especially adapted to boots, harness leather, and belting.

A SUBSTITUTE FOR LEATHER.

The London *Times* endorses the claims of an invention, owned by a Mr. Szerelmy of England, which, according to the description of the article, possesses every quality of the real leather, and is vastly superior to it on many accounts. It will not crack, is tougher, will wear longer and will resist water as effectually as rubber. The leather cloth can be of any color, and a pair of boot tops which cost of calf-skin one dollar and a half, will cost of this material only twenty-five cents. The invention is of immense value.

TO RENDER LEATHER VERMIN-PROOF.

Some two hundred thousand dollars worth of boots and shoes were recently destroyed on a vessel hence to California. An application of castor-oil will render leather vermin-proof, at the same time, it is as good a dressing to preserve it as is known. It may be mixed with tallow or other oil if preferred, say half and half.

TO POLISH ENAMELED LEATHER.

Take half a pint of the best cream, a quarter of a pint of linseed oil, make them each lukewarm and then mix them well together. Having previously cleaned the leather, rub it over with a sponge dipped in the mixture; then rub it with a soft dry cloth until a brilliant polish is produced.

TO POLISH PATENT LEATHER ON CARRIAGES, &c.

First apply sweet oil with a soft piece of muslin; then after a few hours polish by rubbing with a soft, pliable piece of muslin.

LEATHER SCRAPS.

Leather scraps make excellent foot paths, side walks, and roads. As fuel, some leather workers estimate them worth as much as anthracite coal, ton for ton. But they are far the most valuable for manure.

THE USE OF RAW HIDE.

Few persons know the value of raw hides—"deacon" skins for instance. Take a strip of well-tanned raw hide an inch wide, and a horse can hardly break it by pulling back—two of them he can not break. Cut into narrow strips and shave the hair off with a sharp knife to use for bag strings, the strings will outlast two sets of bags. It will outlast common hoop iron in any shape, and is stronger. It is good to wrap around a broken thill—better than iron. Two sets of rawhide halters will last a man's life time—if he don't live too long. In some places the Spaniards use raw hide log chains to work their cattle with, cut into narrow strips and twisted together, hawser fashion. It can be tanned so that it will be soft and pliable like harness leather.

TO DRESS RAW HIDE.

When the skin is first taken from an animal, (a calf for instance,) spread it flesh side up; then make fine two parts of salt, and one part each of saltpeter and alum; sprinkle this evenly over the surface; roll it up, and let it lay a few days till dissolved. Then take off what

flesh remains, and nail the skin to the side of a barn in the sun, or in dry weather stretch on the ground by driving pegs in the edge of the skin. It must be stretched tight, or there will be hard and ugly wrinkles you can not get out. After drying, and the flesh is sufficiently off, it is fit to cut up. But to make it soft and pliable like harness leather, put neat's foot oil on it—fasten it up again, and let it remain a day or two in the sun. Then take a stick about three inches wide, and long enough to work with both hands, made like a wedge on the end, and rub out all the oil you can, and it is dressed with the hair on.

TO CURE SHEEP SKINS WITH THE WOOL ON.

Take one tablespoonful of alum and two of saltpeter; pulverize well and mix together thoroughly. Sprinkle this powder upon the flesh side of the skin and fold together with the wool out; hang up in a cool place. In two or three days, as soon as dry, take down and scrape the flesh with a blunt-edged knife till clean. This completes the process. Such skins make excellent saddle covers.

SHEEP SKINS FOR MATS.

Steep the skins in water, and wash them well till they are soft and clean; they are then scraped and thinned on the flesh side with the fleshing knife, and laid in fermented bran for a few days, after which they are taken out and washed; a solution of salt and alum is then made, and the flesh side repeatedly and well rubbed with it till it appears well bleached; after which make a paste to the consistency of honey, of the alum and salt solution, by adding wheaten flour and the yolk of eggs, and spread this paste on the flesh side; after this they are stretched and dried, and when dry rubbed with pumice stone.

TANNING DEER SKINS.

The method usually practiced in preparing deer skins for market, is as follows: The skins are placed in a barrel of water, with enough ashes to make a weak ley. They remain there until the hair comes off easily, with a graining knife, and they are then grained. They are then hung up to dry, until hard and flinty, and then they are soaked in rain water, with a little soft soap; the water being about blood-warm. To dry them, wringing is resorted to; and after this process, the wrinkles are pulled out by the hand. They should be

next smoked with rotten wood, or sawdust, in a long trench, for a day or so, the skins being placed loosely in a box, or barrel, and again washed in rain water. This process is repeated two or three times, and a very well tanned skin is the result.

DRESSING FUR SKINS.

Well-handled skins, that is those which are properly prepared, will always sell for ten to twenty-five per cent, and sometimes fifty per cent more than similar skins badly handled.

In the first place, carefully avoid getting blood or dirt upon the fur before skinning. If that is unavoidable, carefully clean and dry it before you take off the pelt, which of all small animals, such as mink, fox, weasel, cats, wild or tame, muskrat, fisher, otter, rabbits, squirrels, should be taken off without ripping down the belly, and no bones should be left in legs or tail, and no flesh left adhering to the pelt. This must be carefully scraped or picked off, before or after the pelt is stretched, which is best done upon a thin, smooth board, or shingle, cut a little tapering, upon which the skin should be turned inside out as soon as it is stripped from the body, and drawn smooth and tight and tacked fast, and then hang up to dry in the air, or in the smoke, with but little heat from the fire. If you are in the woods, or where you cannot get boards or shingles to make your stretchers, you must adopt the Indian's mode, and stretch your pelts upon a bow made of a hickory sprout, or other tough wood, which, after trimming perfectly smooth, you will slightly notch in the middle of the length, and bend toward the ~~notch~~. Then half-way from the nose end cut two notches and insert a brace, which will be held in place by tying a string around the ends so as to bring them just near enough together to suit the size of your pelt. It is sometimes necessary to put in two or more braces, to hold the sides of the bow firm and wide enough apart to stretch the skin into a good shape, and to the utmost tension, which adds to their value.

It is not necessary to stretch skins fur side out to show the quality. A good judge can tell a good pelt as soon as he sees the flesh side.

To dress skins with the fur on, stretch them tightly upon a board, and scrape with a dull knife until you remove all the flesh. Mix two quarts of milk, a teacupful of salt and half an ounce of oil of vitriol. Warm this mixture to somewhat more than blood heat, but not scalding, and soak the skin in it forty minutes, stirring and squeezing it in the warm liquid. Press out the liquid and let the skin dry a short

time, and then commence rubbing the flesh side with all your strength across the smooth edge of a board. Continue this work until the pelt is entirely dry.

Another process is to cover the flesh side of the skins when first taken off with powdered alum and salt in equal quantities, which may remain from one to four days, and then be washed off in warm soap-suds, partially dried, and afterward rubbed until thoroughly so. In rubbing dry you may use powdered chalk, and afterward sprinkle with powdered alum and fold up for a few days, when the skin will be thoroughly cured and very soft.

For making glove leather, the hair must be first removed by lime or ley upon the flesh side, then thoroughly wash in soap-suds, and afterward soak several days in a paste made of brains; then rub dry, and cure by smoking moderately for a week in a cool place. This will give the fine, soft durable Indian moccasin leather.

TANNING SKINS WITH THE FUR ON.

Nail the fresh skins tightly and smoothly against a door, keeping the inside out. Next proceed with a broad-bladed blunt knife to scrape away all loose pieces of flesh and fat; then rub in much chalk, and be not sparing of labor; when the chalk begins to powder and fall off, take the skin down, fill it with finely ground alum, wrap it closely together, and keep it in a dry place for two or three days; at the end of that time unfold it, shake out the alum, and the work is over.

TO PRESERVE HIDES AND SKINS.

Dr. Calvert says hides or skins immersed for twenty-four hours in a solution of one part of carbonic acid to fifty of water, and then dried in the air, will remain quite sweet. Hides and bones thus prepared have been safely imported from Monte Video.

CEMENTS AND GLUES.

Cements for Porcelain, Marble, Alabaster, Glass, &c.—Take of izinglass two drachms, wet it with water, and allow it to stand until softened, then add as much proof spirit as will rather more than cover

it, and dissolve with a moderate heat. Take of gum mastic one drachm, dissolve it in two or three drachms of rectified spirits. Mix the two solutions, and stir in one drachm of gum ammoniacum in a fine powder, and rubbed down with a little water. Keep the cement in a bottle. When required for use place the bottle in warm water, and apply the cement with a stick or small hard brush to the china previously warmed. Compress the pieces firmly together until cold, taking care to make the contact perfect, and using a very thin layer of cement.

The white of eggs thickened with powdered quicklime is also used as a cement for broken china, marble and glass.

White resin and white beeswax melted and mixed with plaster of Paris make a good cement for mending alabaster and marble ornaments.

A transparent cement for glass is made by dissolving one part of india rubber in chloroform, and adding sixteen parts, by measure of gum mastic in powder. Digest for two days, and frequently shake the vessel in which these substances are contained. The cement is applied with a fine camel's hair brush.

The silicate of soda is about the best cement that can be used for mending broken crystal.

To Join Alabaster.—Ornaments of alabaster or plaster may be joined together by means of a little white of an egg, thickened with finely powdered quicklime, or by a mixture of newly-baked and finely powdered plaster of Paris, mixed up with the least possible quantity of water.

To mend China—Excellent.—Take a very thick solution of gum arabic in water, and stir into it plaster of Paris until the mixture becomes a viscous paste. Apply it with a brush to the fractured edges, and stick them together. In three days the article cannot again be broken in the same place. The whiteness of the cement renders it doubly valuable.

Cement for China, &c., which stands fire and water. With a small camel's hair brush rub the broken edges with a little carriage oil-varnish, and let it dry thoroughly.

Cement for Broken China, Glass, Alabaster, or Ivory Ornaments.—A quarter of an ounce of the best fine izinglass—not *gelatine*—half an ounce of spirits of wine; put the izinglass into a very small jug with a lip; pour on it a *few drops* of fast boiling water. This will dissolve the izinglass. Then put in the spirits of wine. Let it stand ten minutes by the fire, or until the whole is well mixed. Pour it into a bot-

tle with a tiny neck; when cold it will be a solid white mass. The articles to be repaired must be dry and *warm*; melt the cement by standing the bottle in hot water, and apply it with a camel's hair brush. After using, observe that the bottle is well corked, or the cement loses its strength by evaporation. This is the cheapest, best, and readiest cement to use for repairing articles not intended to contain hot water, as this would cause the mended fracture to come to pieces.

Cement for Wood and Glass.—Dissolve common glue in a carpenter's glue pot, and add to it finely sifted wood ashes, until it becomes somewhat thicker, but still pasty. Apply it while hot, and press the edges of the glued article firmly together. This cement is said to be very adhesive for wood.

Cement for Mending Glass.—A transparent cement for glass is made by dissolving one part of India rubber in chloroform, and adding sixteen parts by measure of gum mastic in powder. Dissolve for two days and frequently shake the vessel in which the substances are contained.

Cement for Glass, as Lamps, &c.—Mix quickly white of egg and good quick-lime, and use instantly.

Amber is joined or mended by smearing the surfaces of the pieces with linseed or boiled oil, and then strongly pressing them together, at the same time holding them over a charcoal fire, or heating them in any other way in which they will not be exposed to injury.

Cement for Sealing Fruit Cans.—Melt and stir well together one pound of rosin and one ounce of tallow; or,

Rosin four parts, tallow one part. This was recommended by Mr. Watson before the Polytechnic Association.

Another.—Equal parts shellac, rosin and Venice turpentine.

Another.—One pound rosin, one ounce beeswax, one ounce tallow. After the wax is poured on the cans, cool its surface with cold water, and work it with the fingers, pressing out all bubbles of air, and leaving the surface smooth and firm.

Cement for Kerosene Oil Lamps.—Plaster of Paris is the common cement used for fastening brass burners to the glass.

Plaster of Paris is said to make a superior cement when mixed with warm instead of cold water. It should, in every case, be applied as soon as it is made, because it sets so rapidly.

Cement for the Brass Mountings of Paraffine Lamps.—Take equal parts of gum shellac, common rosin and brick dust, and reduce them to a fine powder in a mortar. Fill the inside of the brass mounting

with this cement, and place it on a piece of sheet iron over the fire, or gas flame, until it melts; then press down the lamp on it, and allow all to cool. The cement should not be allowed to flow over on lamps with screwed sockets, as it is difficult to remove it from the thread.

Cement for Ivory, Mother of Pearl, &c.—Dissolve one part of izinglass and two of white glue in thirty of water, strain and evaporate to six parts. Add one-thirtieth part of gum mastic, dissolved in half a part of alcohol, and one part of white zinc. When required for use, warm and shake up.

Another Ivory Cement.—The finest izinglass mixed in common gin. They should be melted together in a wide-mouthed bottle, standing in a sauce-pan of hot water; the cement should be very stiff when cold, and it is best to allow it to become so, and then re-melt it for use. This is also an admirable cement for any ornamental china, and it will stand gentle washing although not soaking in water.

Another.—A strong solution of glue and whiting is a very good cement for ivory.

Cement for Uniting Bone.—A strong solution of white glue, mixed with some fine chalk.

Cement for India Rubber.—The solution employed to cement India rubber to leather, is India rubber dissolved in naphtha. It is not however suitable for cementing vulcanized India rubber to leather. Gutta percha dissolved in naphtha also makes a good cement.

To Unite India Rubber.—The edges of India rubber may be fastened together by means of a cement made by dissolving India rubber in spirits of turpentine or in naphtha. The edges should be faced together by powerful pressure continued for two days. The same cement and process will secure India rubber to wood.

India rubber can be dissolved by several substances which evaporate and leave it in a solid condition. Naphtha, turpentine and benzole are solvents, but the latter is preferable on account of it having a more pleasant odor than the other two. You can form it upon a mold by dipping the mold into the solution repeatedly as candles are dipped; allowing the rubber to harden between the immersions. If you use a wooden mold rub the surface with pumice stone before using it.

Cement for the Soles of Boots and Shoes.—Turpentine and naphtha will dissolve gutta percha and India rubber, converting these substances into cement for the soles of boots and shoes. Cut the gutta percha into shreds, place it in the naphtha, and stir it frequently until it is dissolved.

Old India rubber shoes may be patched by the use of warm India rubber cement and patches of old rubber laid on and pressed down with a flat-iron.

Vulcanized India rubber withstands heat up to 300 degrees Fahrenheit.

Water Proof Cement.—Incorporate thoroughly eight parts of melted glue, of the consistence used by carpenters, with four parts of linseed oil, boiled into varnish with litharge. It hardens in about forty-eight hours. It is also said that a compound of glue with one-fourth its weight of Venice turpentine, made as above, serves to cement glass water tight.

Another.—Gum shellac dissolved in alcohol makes a water proof cement.

Water Tight Cement.—Mix equal parts of red and white lead with sufficient boiled linseed oil to make a paste.

Fire and Water Proof Cement.—To half a pint of vinegar add the same quantity of milk; separate the curd and mix the whey with the white of five eggs; beat it well together and sift into it a quantity of quick-lime to convert it to the consistency of a thick paste. It is said that broken vessels mended with this cement never afterwards separate, for it resists both the action of water and fire.

Fire, Water and Weather Proof Cement.—A cement which is a good protection against weather, water and fire to a certain extent, is made by mixing a gallon of water with two gallons of brine, then stir in two and a half pounds of brown sugar, and three pounds of common salt; put it on with a brush like paint.

Cement for Sticking Brass Letters to Window Glass.—Rosin 150 parts, wax 30 parts, burnt ocher 30 parts, and calcined plaster 2 parts. Apply warm.

To Make Paper Adhere to Tin.—Paste, gum, wax, or glue will not effect it, unless the surface is well rubbed with acetic acid or strong vinegar. Many other acids will answer, but vinegar is always cheapest and most convenient.

A good paste for fixing paper labels on tinned sheet iron may be obtained by preparing a paste from water, rye flour, and a small quantity of a solution of glue, to which add so much of Venice terebinth as to fit it for brushing over the labels, which will adhere closely to the tinned surface and will not be affected by moisture.

A very fine marble cement is made by soaking plaster of Paris in a strong solution of alum, after which it is baked in an oven, and then ground to powder. The powder is then mixed with water and ap-

plied as wanted. It sets very hard and takes a brilliant polish. It may be mixed with metallic colors, such as red lead, so as to produce an imitation of marble.

Diamond Cement.—The diamond cement, which is so useful in joining glass, china, wood, leather, etc., is formed as follows: White glue, (or gelatine) 4 pounds; white lead, (dry) 1 pound; soft water, 4 quarts; alcohol, 1 quart. Boil the glue and the lead in the water by means of a water bath. When the glue is dissolved, add the alcohol, and stir until the whole is well mixed. Pour into vials for use.

Cement for Leather.—The best cement for uniting surfaces of leather together is a strong solution of izinglass. A cement composed of dissolved India rubber and lac varnish is also very adhesive.

Cement for Knife Handles.—When knives and forks have come off the handles from being carelessly put in hot water, or otherwise, a cement made as follows will be useful to refasten them: Take of gum shellac two parts, and prepared chalk one part; reduce them to powder, and mix thoroughly. Fill the opening in the handle with this mixture, heat the shank of the knife and press it in. Then keep the handle out of hot water.

Stove Cement.—Wood ashes and salt and water are said to form a cement sufficient to stop cracks in old stoves, and prevent the escape of smoke.

Boiler Makers' Cement.—Mix with white lead ground in oil, as you buy it at the paint shops, red lead so as to make a paste like dough. It will harden in two weeks. Use only just enough for the purpose.

Cement for Steam Pipes and Water Cisterns.—White lead and litharge mixed together in nearly equal proportions with boiled linseed oil so as to make it of the consistency of putty, forms a good cement for water cisterns, when mixed with about ten per cent. of dry white sand.

Cement for Lining Cisterns.—Sand, one part; ashes, two parts; good clay, three parts, mixed with sufficient linseed oil.

Cement for Stopping Leaks.—A composition of four pounds of rosin, one pint of linseed oil, and one ounce of red lead, applied hot with a brush, will stop leaks in roofs, water casks, &c.

Cement for Stone Work.—A very good cement for the joints of stone flags and chimney caps is made with linseed oil, red lead and whiting. Take equal parts of the two latter, and knead them with the oil, until a cement of the consistency of putty is made; when it may be applied with a small trowel.

Improved Cement.—Common lime mortar becomes hard from long

exposure to the atmosphere, by absorbing carbonic acid slowly, and thus returning to its original condition—limestone being a carbonate of lime. A patent has been taken out for a new cement to be used as a mortar for building and plastering, and also casting in molds. The nature of the improvement consists of a mixture of carbonate of lime with common burned lime. This cement is composed of one bushel of burned lime to two bushels of ground dry chalk or ground limestone or marble. The lime, as it comes from the kiln, is first slacked with water, then mixed with the ground chalk or limestone in water; sand is then added in the same way that common mortar is made, and the mass allowed to stand for two or three days before the cement is used. This cement may also be made by mixing the burned lime, dry, with the chalk (which is dried in an oven,) in powder, and kept for use, to be mixed with water. It may also be worked into a paste and molded like clay. It soon becomes quite hard and fixed.

Hydraulic Cement for Walks.—Equal parts of cement, unslacked lime, and thoroughly sifted sand, mixed, then left undisturbed one week, then laid down and not again touched until dry.

Cement Pipe.—The proper proportion for cement pipe is one of water cement to three of sand. Gravel from the size of a pigeon's egg down is better than fine sand, and it must be perfectly clean and free from mold or vegetable matter. The cement and sand must be thoroughly mixed before the water is added, and it must be used immediately after mixing. The most common cause of failure is a poor quality of cement.

Cement for Stone Ware.—Gelatine is allowed to swell in cold water, the jelly warmed, and so much recently slaked lime added as is requisite to render the mass sufficiently thick for the purpose. A thin coating of this cement is spread, while warm, over the gently-heated surfaces of fractures of the articles, and let dry under strong pressure. What oozes out is removed directly with a moist rag.

A good Cement for the Joints of Steam Pipes.—Six parts (by weight,) of plumbago, three of slacked lime, and eight of the sulphate of baryta, mixed with boiled linseed oil.

Iron Cement.—To make an iron cement suitable for making rust joints, mix thoroughly one hundred and twelve pounds of clean cast iron borings or turnings, with eight ounces of sal ammoniac and one ounce of flour of sulphur, and add sufficient water. Keep wet when not to be immediately used, or it will heat and be spoiled.

Another.—To prepare iron cement for stopping leaks, take sixteen parts of clean wrought-iron filings, three parts powdered sal ammoni-

ac and two parts flour of sulphur; mix all well together, and preserve the compound in a stoppered vessel and in a dry place till wanted for use. Then take one part of the mixture and add to it twelve parts of clean iron filings, and mix this new compound with as much water as will bring it to the consistency of a paste, having previously added to the water a few drops of sulphuric acid.

Hard Cement.—Pulverized brick, which has been well burnt, thirteen parts; well ground litharge one part—made to a paste by linseed oil. Apply as a plaster, previously wetting the surface with a sponge, to prevent the cement being too much absorbed. It becomes hard in three or four days. It may be applied to wood, but also to stone or metal, and resists water.

Another.—The following cement has been used with great success in covering terraces, lining basins, soldering stones, &c., and everywhere resists the filtration of water. It is so hard that it scratches iron. It is formed of ninety-three parts of well burned brick, and seven parts of litharge, made plastic with linseed oil. The brick and litharge are pulverized; the latter must always be reduced to a very fine powder; they are mixed together, and enough of linseed oil added. It is then applied in the manner of plaster, the body that is to be covered being always previously wet with a sponge. This precaution is indispensable, otherwise the oil would filter through the body, and prevent the mastic from acquiring the desired degree of hardness. When it is extended over a large surface, it sometimes happens to have flaws in it, which must be filled up with a fresh quantity of the cement. In three or four days it becomes firm.

Cheap Cement.—Prof. Edmund Davy lately read a paper to the Royal Dublin Society, on a cement which he obtains by melting together, in an iron vessel two parts (by weight,) of common pitch, with one part of gutta percha. It forms a homogeneous fluid, which is much more manageable for many useful purposes than gutta percha alone, and which, after being poured into cold water, may be easily wiped dry, and kept for use. The cement adheres with the greatest tenacity to wood, stone, glass, porcelain, ivory, leather, parchment, paper, hair, feathers, silk, woolen, cotton, &c.

Cement for Rooms.—An invention by M. Sorel, of Paris, is stated to be superior to plaster of Paris for coating the walls of rooms. It is used in the following manner: A coat of oxide of zinc mixed with size made up like a wash, is first laid on the wall, ceiling, or wainscot, and over that a coat of chloride of zinc applied, being prepared in the same way as the first wash. The oxide and chloride effect an imme-

diate combination, and form a kind of cement, smooth and polished as glass, and possessing the advantages of oil paint, without its disadvantage of smell.

Flour Paste.—Too numerous to mention are the little conveniences of having a little flour paste always at hand, as those made of any of the gums impart a glaze to printed paper, and make it rather difficult to read. Dissolve a tablespoonful of alum in a quart of warm water, and when cold stir in as much flour as will give it the consistency of thick cream being particular to beat up all the lumps, then stir in as much powdered rosin as will stand on a dime, then throw in half a dozen cloves, merely to give a pleasant odor. Next, have a vessel on the fire which has a teacupful or more of boiling water, pour the flour mixture on the *boiling* water, stir it well all the time; in a very few minutes it will be of the consistence of mush; pour it out into an earthen or china vessel; let it cool; lay a cover on it, and put in a cool place. It will keep for months. When needed for use, take out a portion and soften it with warm water. We keep ours covered an inch or two in water to prevent the surface drying up. Paste handled in this way will last for twelve months.

Cement for Stoves.—Take iron filings, and mix to about the consistency of putty for glazing, with white lead and linseed oil. Fill in the joints as securely as possible, while the stove is cold, and let it stand a day or two before using; or,

Take fine salt one part, and two parts of fresh hard wood ashes, mix well together, then take cold water, and mix into a mortar. Apply to the crack either warm or cold, and you will find a cement which will answer all common purposes, and found to be very useful where the stove-pipe joints are not as tight as desirable. These two are communicated by T. E. Bridger, Suffolk, N. Y.

Glue Cement.—Dissolve half a pound of good common glue in water, in the usual way, and saturate clean white paper in it until the glue solution is absorbed. The saturated paper is then dried and cut into strips, and these are put into a clean glue-pot containing about half a pound of alcohol, then boiled gently over a fire for about an hour. A light cover is kept on the glue-pot during ebullition. The paper is now removed from the glue-pot, and is found freed from the glue, which has been taken up by the alcohol. The object of thus soaking the paper in glue is simply to obtain an extensive surface for the alcohol to act upon the glue. At this stage of the operation half a pound of pulverized gum shellac is gradually added, and the boiling of the alcohol continued with occasional stirring until the gum is dis-

solved. This forms a very adhesive cement for leather belts and several other purposes.

Glue.—Powdered chalk added to common glue strengthens it. A glue which will resist the action of water is made by boiling one pound of glue in two quarts of skimmed milk.

Preserving Glue.—Dr. Calvert, F. R. S., F. C. S., says, one part of carbolic acid added to five thousand parts of a strong solution of glue will keep it perfectly sweet for at least two years, and probably for an indefinite period.

Prepared Liquid Glue.—Take of the best white glue sixteen ounces; white lead, dry, four ounces; rain water two pints; alcohol four ounces. With constant stirring dissolve the glue and lead in the water by means of a water bath. Add the alcohol, and continue the heat for a few minutes. Lastly, pour into bottles while it is still hot.

Another.—A correspondent of the *Country Gentlemen* says: Liquid glue is best prepared and preserved by simply dissolving the glue in pure strong vinegar. And another adds that glue will dissolve readily in alcohol and vinegar—half each.

Another newspaper correspondent says that the prepared glue so much advertised in the newspapers is made by dissolving common glue in warm water, and then adding acetic acid (strong vinegar,) to keep it. Dissolve one pound of best glue in one and a half pints of water, and add one pint of vinegar. It is ready for use.

Another.—L. E. Todd assures us he has been credibly informed that Spaulding's liquid glue, which has been advertised so extensively in years past, is prepared by dissolving glue in muriatic acid.

Marine Glue.—Dissolve three or four parts of india rubber in thirty-four parts of coal tar naphtha—aiding the solution with heat and agitation; add to it sixty-four parts of powdered shellac, which must be heated in the mixture, till the whole is dissolved. While the mixture is hot it is poured upon metal plates in sheets like leather. When required for use, it is heated in a pot, till soft, and then applied with a brush to the surfaces to be joined. Two pieces of wood joined with this glue can scarcely be sundered.

Water Proof Glue.—Gum shellac dissolved in alcohol.

Glue in Bones.—Bone contains from thirty to thirty-six per cent of earthy matter, and the remainder is gelatine. When bones are digested in muriatic acid, they become transparent and flexible like leather, the earthy matter is dissolved, and after the acid is all carefully washed away, pieces of glue of the same shape as the bones re-

main, which are soluble in hot water, and adapted to all the purposes of ordinary glue.

MISCELLANEOUS.

TO MAKE RED AND BLACK SEALING WAX.

Red sealing wax of good quality is made by carefully fusing a mixture of forty-eight parts of shellac, nineteen of Venice turpentine, and one of Peru balsam, to which thirty-two parts of finely levigated cinabar and some sulphate of lime are afterwards added. In the cheaper kinds red lead is substituted for the vermilion, and there is much common rosin, which causes the wax to run into thin drops when melted. Black sealing wax is made of sixty parts of shellac, ten of Venice turpentine, and eight of finely levigated ivory black.

TO BLEACH BROOM CORN BRUSH.

Dampen the brush with water, enclose it in a box, and apply the fumes of burning brimstone.

TO SOFTEN HORN.

Horn is softened by boiling it in water. It becomes so pliable that it may be molded under pressure into almost any form. In order to render horn smooth it should be scraped when it is soft after being boiled. It may be scraped so thin as to become almost transparent. The nitrate of Silver is employed to stain it black, and nitric acid colors it yellow.

TO CUT INDIA RUBBER.

When you cut India rubber keep the blade of your knife wet, and you can then cut it without difficulty.

LIGHTNING RODS.

The *Scientific American* says: Silver and platinum are used for tipping the points of lightning rods, but there is no necessity for using any other metal than the iron or copper of which the rod is made.

Copper lightning rods are the best in use. Varnishing a lightning rod injures its conducting power.

MELTING ZINC.

To melt zinc and prevent it from evaporizing, it being a very volatile metal, cover its surface, in the vessel in which it is melted, with soot of pulverized charcoal.

SOLDERING.

Dr. Augustus Vogel says : The ordinary cyanide of potassium possesses advantages over all other substances for soldering ; to be used with solder in the same manner as powdered rosin is employed by tinsmiths. It is kept at hand in the form of a powder in a closed glass bottle, and sprinkled over the surface to be soldered, after it has been slightly moistened. It will be found particularly useful when the surfaces cannot be brightened. A mixture of one-half borax and one-half cyanide in powder is best when the heat to be applied to melt the solder is very high. For common soldering with very hard solders, a compound of borax, potash and table salt, fused together and reduced to powder, is employed.

HOW TO APPLY SOLDER.

To make soldering fluid that will cause solder to run over or through iron or any metal, take six pennyweights zinc, clean and cut in small strips from the sheet, put it in an earthen cup, then put one and a half pennyweights sub-nitrate of bismouth, then pour on one ounce of muriatic acid. It will boil furiously. Let it stand a day or two, stirring it occasionally, then let it settle, and pour off the clear liquid for use. The edges of the pieces to be soldered are first filed, then wet with the metallic solution, the edges brought together, a piece of solder laid on, and the hot soldering tools then applied in the usual manner.

VARIOUS SOLDERS.

Common plumbers' solder is lead two and tin one part. A very soft solder used for soldering pewter is composed of two parts of tin, one of bismouth and one of lead. Gunsmiths' soft solder is composed

of two parts of tin and one of lead; plumbers' solder, one of tin and one of lead. A hard solder for gold is composed of thirteen grains of gold, seven of pure copper and four of pure silver. Melt all together and roll it out thin for use.

TO MAKE PLASTER AND ALABASTER ORNAMENTS WEATHER-PROOF.

The distinguished chemist, M. Kuhlman, informs us that casts of molded plaster and sculptured alabaster, otherwise incapable of exposure to the weather, may be treated by boiling in the pitch of coal tar so as to become impervious to moisture, unaffected by frost, and may be used for the outside ornamental works of buildings.

WHITE COMPOSITION FOR ORNAMENTS.

Make a strong solution of izinglass and gin, (or whisky) and add chalk in fine powder until it is of the proper consistency. This composition is now generally heated and poured into the mold, which should be coated with linseed oil to prevent adhesion. The composition is left in the mold until it is dry, when it may be taken out, and will be found to have a resemblance to ivory. This substance becomes very hard, but it will not withstand exposure to the weather.

Rice starch, boiled in water for half an hour, and made into a paste of suitable thickness, with fine chalk or plaster of Paris, is also suitable for making ornamental work by casting or pressing it into molds, as described above.

COMPOSITION FOR MODELING.

Rosin, glue and whiting. A little experimenting will give the right proportions.

TO TAKE A PLASTER OF PARIS CAST FROM A PERSON'S FACE.

The person must lie on his back, and his hair be tied behind; into each nostril put a conical piece of paper, open at each end to allow of breathing. The face is to be lightly oiled over, and the plaster, being properly prepared, it is to be poured over the face, taking particular care that the eyes are shut, till it is a quarter of an inch thick. In a few minutes the plaster may be removed. In this a mold is to be formed, from which a second cast is to be taken, that will furnish casts exactly like the original.

CLARIFIED GALL.

Ox gall is prepared for the use of artists in the following manner: To one pint of fresh ox gall, boiled and skimmed, add one ounce of finely powdered alum; leave it on the fire till the alum is dissolved, then let it cool, put it into a bottle, and cork it loosely. Treat another pint in the same way, with one ounce of salt, instead of alum. After standing more than three months, carefully decant from each bottle the clear portion, and mix them together. The coloring matter is precipitated, and a clear colorless liquid is obtained by filtration. It is used for mixing artists' colors, and to prepare ivory, oiled paper, &c., to receive the colors.

TO MAKE OLD FILES AND RASPS NEARLY EQAUL TO NEW.

First boil them in soap, ley, or a mixture of slacked lime and soda in water. This done, wash them in water, and directly throw them into a vessel full of diluted sulphuric acid, formed of one part acid and six parts water; let them remain for some time, the exact period being easily found by taking out a file, observing whether the nicks appear sharp or not; as soon as the sharpening is effected, the files must be taken out and washed in another vessel containing a solution of soda, about an ounce of soda to a pail of water.

Re-cut files are largely used. They are of course somewhat thinner or lighter, but are just as good.

MAGNETS.

To charge a piece of steel with the horse-shoe magnet, place one end of the magnet on the middle of the bar, and draw it to the end of the bar, and repeat the process several times, always in the same direction. Then place the other end of the magnet on the middle of the bar, repeating the stroke as before.

The harder steel is the more difficult it is to magnetize it.

Thin and narrow magnets are more powerful than those which are broad and thick.

Pure soft iron cannot be rendered permanently magnetic, like steel and cast-iron.

Any bar of iron or steel standing for a long time in a vertical position becomes magnetic. We have tried many old pairs of tongs with a compass and always found that one end would attract the North pole and the other the South.

TO IMITATE GROUND GLASS.

A ready way of imitating ground glass is to dissolve Epsom salts in beer, and apply with a brush. As it dries it crystallizes.

TO DRILL HOLES IN GLASS.

Use a little turpentine to keep the point of the drill moist. Glass may be readily drilled by using a steel drill hardened but not drawn at all, wet with spirits of turpentine. Run the drill fast and feed light. Grind the drill with a long point, and plenty of clearance, and no difficulty will be experienced. The operation will be more speedy if the turpentine be saturated with camphor gum. With a hard tool thus lubricated, glass can be drilled with small holes, say up to three-sixteenths, about as rapidly as cast steel.

Any anti-lubricating fluid aids the drill in penetrating, and turpentine, benzine, naphtha, have been successively used for that purpose.

To drill through glass, it should be countersunk on both sides before the drill is started, as that prevents the drill from scaling the edges as it goes through. For countersinking, use a drill dressed off at the point like a very flat three-sided pyramid.

TO FILE GLASS.

To file glass, take a twelve inch mill file, single cut, and wet it with turpentine saturated with camphor, or any of the above liquids, and the work can be shaped as easily, and almost as fast as if the material were brass.

HOW THE SOLDIERS MADE GOBLETS.

A correspondent of the *Mobile Register* describes a new mode of manufacturing glass goblets. He says:

I saw mine host, Dr. T., doing something last evening that was new to me. Crockery and glassware of the ordinary kind being well nigh obsolete, especially at Tangipanoa, the Doctor was simply manufacturing his own glassware. As his process is easy, cheap, simple and worthy of imitation, I will describe it. Take a claret bottle, or any kind of a glass bottle—bottles of thin white glass with flat bottoms are the best; hold the bottle firmly by both ends; let another person, having a cup of water ready, pass a stout cotton cord

twice around the bottle, and create a friction by pulling the ends of the cord to and fro rapidly for a minute or so; then let him jerk the cord off, dash the water on quickly, and presto! you hold in one hand as serviceable a tumbler or goblet as you need wish, and in the other a neat but not gaudy glass candlestick. The bottle should be held with a strap, piece of leather, or other substance with a hard, straight edge, firmly around it, at the intended point of severation, in order to keep the cord in one place during the friction, and to secure straight and smooth edges to the glassware. Old bottles can be put in good use in this way.

TO REMOVE OLD PUTTY.

Moisten the putty with muriatic acid, and it will soon become soft. Turpentine will loosen it less efficiently, if the putty is not very hard. Or heat a piece of iron of suitable size and shape—apply it to the putty, and let the knife follow as fast as the oil compound softens.

SOLVENT FOR OLD PUTTY AND PAINT.

Soft soap mixed with a solution of potash or caustic soda, or pearl-ash and slacked lime, mixed with sufficient water to form a paste, is an excellent solvent for old putty and paint. Either of these laid on with an old brush or rag, and left for some hours, will render the putty or paint easily removable.

TO SOFTEN AN OLD PAINT BRUSH.

Prof. J. B. Turner of Ills. says, apply coal oil.

TO MAKE AN ARTIFICIAL GRINDSTONE.

An artificial grindstone can be made by the following formula, although the natural one is cheaper and better. Washed silicious sand, three parts; shellac, one part; melt the lac and mould in the sand while warm. Emery may be substituted for sand. Used for razors and fine cutlery.

TO REMOVE NITRATE OF SILVER STAINS FROM THE SKIN.

Water, one pint; sulphuric acid, half an ounce. It is quick in its operation without any of the attendant dangers of the cyanide of potassium.

NEW WAY TO SEND A CYPHER MESSAGE.

Wrap a strip of paper slanting around a pencil case, ruler, or any round object, making all the edges meet. Write upon it, and then unwrap it; it will be quite a chaos, but when brought back to its old position on the roller, it will be as legible as this print. The roller would have to be the same in both cases, with the sender and the recipient, but this could easily be arranged beforehand. The message might also be written zig-zag on the roller, and thus increase the difficulty of reading it.

PREVENTION OF RUST IN IRON AND STEEL.

When bricklayers leave off work for a day or two, as from Saturday to Monday, they push their trowel in and out of the soft mortar, so that the bright steel may be smeared all over with a film of it, and find this plan an effectual remedy against rust.

Polished steel or iron goods, such as fire-arms, fenders, and the fronts of "bright stoves," when not in use, are preserved by shaking a little powdered lime on them out of a muslin bag, which is found sufficient to prevent their rusting.

The manufacturers of needles, watch springs, cutlery, etc., generally introduce a small package of quick-lime into the box or parcel with polished steel goods, as security from rust, before sending it to a distant consumer, or stowing it away for future use. It is not absolutely essential that the quick-lime should be in actual contact with the metal, but if somewhere near, as in the case of a parcel of lime packed up with the needles or watch springs, the bright metal will remain a long while without the least alteration in its appearance.

TO PREVENT TOOLS FROM RUSTING.

Thousands of dollars are lost each year by the rusting of plows, hoes, shovels, &c. Some of this might be prevented by the application of lard and rosin, to all steel or iron implements. Take three times as much lard as rosin, and melt them together. This can be applied with a brush or cloth to all surfaces in danger of rusting, and they can easily be kept bright. If tools are to be laid by for the winter, give them a coating of this, and you will be well repaid. It can be kept for a long time, and should always be on hand, and ready for use. Beeswax and lard are also recommended.

If rusty iron is rubbed with boiled oil, in which some red lead has been mixed, on a warm day, the rusty process will be arrested.

TO PROTECT IRON IMMERSSED IN WATER.

Iron that is to be immersed in water is protected by paint formed of red lead and linseed oil.

TO REMOVE RUST FROM IRON UTENSILS.

Rust may be removed by first rubbing oil well into the article, and in forty-eight hours cover it with finely powdered lime, rub it well and the rust will disappear. Or—The preservation of iron from rust may be accomplished thus: Add to a quart of water half a pound of quick lime; let this stand until the surface is perfectly clear; pour off the clear liquid, and stir up with it a quantity of olive oil, until it becomes a thick cream. Rub the articles with this mixture, and then wrap up in paper. If the nature of the articles will not admit of their being wrapped up in paper, they will remain free from rust by covering them more thickly with the mixture.

To clean rust from plows, Prof. Turner of Ills. says apply coal oil.

TO TAKE RUST OUT OF STEEL.

Cover the steel with sweet oil well rubbed on. In forty-eight hours rub with finely powdered unslacked lime.

TO LOOSEN RUSTY NUTS AND SCREWS.

Prof. J. B. Turner says: Apply coal oil.

SCREWING ON NUTS.

We have sometimes known nuts on threshing machines, circular saws, &c., to be found so tight that no wrench would move them. This was because they had been held in the hand till they became warm, and being then applied to very cold screws in winter, they contracted by cooling on, and thus held the screw with an immovable grasp. Always avoid putting a warm nut on a cold screw; and to remove, apply a large heated iron in contact with the nut, so as to heat and expand it and it will loosen at once—or a cloth wet with boiling water will accomplish the same purpose.

HOW TO DRIVE CUT NAILS INTO VERY HARD WOOD.

Common cut-nails are easily driven into hard wood if rubbed with a little soft soap; saliva is better than nothing for that purpose.

BUYING TOOLS.

A low priced tool is not always a cheap one, and it is better, as a general rule, to pay a fair price for a good article.

TO SPLIT HEATED IRON.

To split heated iron instead of using an awkward chisel, put the iron when heated into a vice, and the ends may be readily slit with a suitable saw, which would save labor in hammering and filing. A saw for this purpose should be made thicker at the edge than at the back and with uniform teeth one-twelfth of an inch apart. The saw when used must be often dipped in water, to prevent it becoming too much heated.

TO CUT HARDENED STEEL.

For cutting hardened steel, a circular piece of common thin iron plate, or sheet iron, being adjusted to a lathe or by other means put into a violent rotary motion, will readily cut off a file, a cutting tool, or tempered steel spring, without drawing or reducing the temper. It is a convenient method of cutting teeth to large saws; but objectionable on account of the newly cut surface being left so hard that they can not be filed by a common file.

TO SEVER A BAR OF IRON OF ANY SIZE INSTANTLY.

A bar of iron of almost any size may be instantly sundered while hot, by the simple application of common roll brimstone. A knowledge of this fact will be useful when some piece of iron work is required to be severed, but which, as is sometimes the case, is so constructed and situated that no ordinary chisel or cutting tool can be brought to apply.

TO PERFORATE IRON INSTANTLY.

Holes may be instantly perforated in bars or plates of heated iron by the application of pointed pieces of brimstone, although this seldom affords much practical utility.

COMPOSITION USED IN WELDING CAST STEEL.

Borax, ten; sal-ammoniac, two; flour of sulphur, one part; grind

or pound them roughly together ; then fuse them in a metal pot over a clear fire, taking care to continue the heat until all spume has disappeared from the surface. When the liquid appears clear, the composition is ready to be poured out to cool and concrete ; afterward, being ground to a fine powder, it is ready for use.

To use this composition, the steel to be welded is raised to a heat, which may be expressed by "bright yellow ;" it is then dipped among the welding powder, and again placed in the fire until it attains the same degree of heat as before. It is then ready to be placed under the hammer.

POLISHED IRON AND STEEL.

Don't strike finished work with a hammer ; take a piece of hard wood instead.

A piece of horn rubbed over polished heated iron gives it a dark, shiny surface.

TO RESTORE BURNED IRON.

Iron which has been burned slightly by careless heating may be restored by drawing it out under a hammer at a low heat a number of times.

TO DRILL THROUGH A FILE.

A diamond used as a drill, will perforate through the hardest file. A good hard common steel point will also drill through a file, if it has a high velocity, and plenty of cold water be used to keep it cool.

STEAM BOILERS AND HARD WATER.

The use of some slippery elm bark fed to the boiler weekly, and blowing off with the surface cock frequently, will keep a steam boiler clean a long time when using hard water. If your boiler gets coated with scale, throw in a pound of slippery elm and it will remove it.

CROSSED BELTS.

A crossed belt will drive more than a straight belt, because it hugs the pulley tighter.

WORKING A WINDLASS.

Two men, working a windlass at right angles to each other, can raise seventy pounds easier than one man can thirty.

MELTING STEEL AS EASILY AS LEAD.

Make a piece of steel red in the fire; then, holding it with a pair of pincers, touch it with a piece of brimstone. Immediately after their contact you will see the steel melt and drop as a liquid.

SHARPENING EDGE TOOLS.

The following is translated from a German scientific journal: "It has long been known that the simplest method of sharpening a razor is to put it in water to which has been added one-twentieth of its weight of muriatic or sulphuric acid, then lightly wipe it off, and, after a few hours, set it on a hone. The acid here supplies the place of wet-stone, by corroding the whole surface uniformly, so that nothing further than a good polish is necessary. The process never injures good blades, while badly hardened ones are frequently improved by it, although the cause of such improvement remains unexplained.

HOW TO HANG AN AX.

A simple rule for even a simple thing will often save much time. A tool that is used so much as an ax should be properly adjusted, as every blow will tell of the ease or hardship of the hanging. The rule is very simple. It was given me by two persons, each of whom is much accustomed to edge tools. Put the helve loosely into the ax at first, so that it can be moved to the proper position; now let the center of the edge of the blade of the ax and the but of the helve (or part taken hold of,) be brought each down to a horizontal line, which may be done by simply placing them on the floor, and the ax is ready for wedging.

SOLVENTS OF GUTTA PERCHA AND INDIA RUBBER.

The solvents for both gums are the same, and rank about in the following order, the best being named first: Bisulphide of carbon, chloroform, coal tar naptha, camphene, sulphuric ether, petroleum benzine, lamp oil. Lamp oil not being volatile cannot be separated from the solution, and therefore the gum cannot be recovered from it. Neither of the gums is completely soluble after being vulcanized, though all of the solvents soften them. Gutta percha is more costly than India rubber.

TO PETRIFY WOODEN OBJECTS.

Take equal quantities of gem salt, rock alum, white vinegar, chalk, and pebbles powdered. Mix all these ingredients; there will happen an ebullition. If, after it has ceased, you throw some wooden objects into this liquid, and leave them soaking for four or five days, they will be transformed into petrifications.

TINNING.

Plates or vessels of brass or copper, boiled with a solution of stannate of potassa, mixed with turnings of tin, become, in the course of a few minutes, covered with a firmly attached layer of pure tin. A similar effect is produced by boiling the articles with tin filings and caustic alkali, or cream of tartar. In the above way, chemical vessels made of copper or brass may be easily and perfectly tinned.

FOR TINNING BRASS.

Water, two pailsful; cream of tartar, one-half pound; salt, one-half pint. *Shaved or grained tin*:—Boil the work in the mixture, keeping it in motion during the time of boiling.

COATING IRON WITH TIN OR ZINC.

Scour the iron bright with sand-paper, wash it with a dilute solution of muriate of zinc, and then rub melted tin over the iron by means of a hot soldering copper. This is a good way to tin the points of lightning rods, which is as good as the more expensive process of silvering. Bright iron dipped in melted zinc becomes coated with the zinc.

Old tin-ware clippings are now economized by having the tin removed from them with a strong alkali, and using it as a mordant in calico printing. The iron may be utilized like other scrap iron.

TO COAT IRON WITH COPPER.

Scour the iron bright and dip it into a strong solution of the sulphate of copper. A thin skin of pure copper will be deposited, but it soon wears off.

FUSIBLE METAL.

1. Bismuth, eight parts; lead, five parts; melt together—melts below 212 degrees Fahrenheit. 2. Bismuth, two parts; lead, five parts; tin, three parts—melts in boiling water. 3. Lead, three parts; tin, two parts; bismuth, five parts; mix—melts at 198 degrees Fahrenheit.

The above is used to make toy spoons to surprise children by their melting in hot liquors; and to form pencils for writing on asses' skin, or paper prepared by rubbing burnt hartshorn into it.

SILVERING, GALVANIZING, GILDING, &C.

Silvering by Powdered Tin.—A quantity of pure tin is melted and poured into a box, which is then violently shaken; the metal assumes when cold the form of a very fine gray powder. This is sifted to separate any coarse particles, and is mixed with melted glue. When it is to be applied it should be reduced by the addition of water to the consistency of thin cream and is laid on with a soft brush like paint. It appears when dry like a coat of gray water color, but when it is gone over with an agate burnisher it exhibits a bright surface of polished tin. If the glue is too strong the burnisher has no effect, and if too weak the tin crumbles off under the burnisher. A coating of white or gold-colored oil varnish or lacquer, is immediately laid over it, according as it may be intended to imitate silvering or gilding. This kind of gilding is often used for covering wood, leather, iron or other articles in constant wear. It is very ornamental.

Silvering Powder for Coating Copper.—Nitrate of silver, thirty grains; common salt, thirty grains; cream of tartar, three and a half drachms; mix, moisten with water, and apply.

Silvering Glass.—Take one ounce pure nitrate of silver, one ounce aqua ammonia, two ounces distilled water. Mix and add two ounces pure alcohol, two ounces distilled water, one-fourth ounce of grape sugar. The above is placed in the article to be silvered (a bottle, for instance,) and kept at a temperature of 160° till the silvering is effected. The purity of the chemicals influence the results, in fact, all depend upon that. The beautiful silvered glass globes seen in the windows of many stores are thus produced.

To Repair the Silvering of Looking-Glasses.—Clean the bare portion

of the glass by rubbing it gently with fine cotton taking care to remove any trace of dust and grease. If this cleaning be not done very carefully, defects will appear around the place repaired. With the point of your knife cut upon the back of another looking-glass around a portion of the silvering of the required form, but a little larger. Upon it place a small drop of mercury; a drop the size of a pin's head will be sufficient for a surface equal to the size of the nail. The mercury spreads immediately, penetrates the amalgam to where it was cut off with the knife, and the required piece may now be lifted and removed to the place to be repaired. This is the most difficult part of the operation. Then press lightly the renewed portion with cotton; it hardens almost immediately, and the glass presents the same appearance as a new one. This operation now so simple has hitherto been considered very difficult.

To Galvanize.—Take a solution of nitro-muriate of gold (gold dissolved in a mixture of aquafortis and muriatic acid,) and add to a gill of it a pint of ether or alcohol, then immerse your copper chain in for about fifteen minutes, when it will be coated with a film of gold. The copper must be perfectly clean, and free from oxide grease, or dirt, or it will not take on the gold.

To Gild without Gold.—Take dry saffron, in powder, with an equal quantity of yellow orpine, well purified of its earthy particles, grind all well together and put it to digest in hot stable manure for three weeks. At the end of that time you may use it to gild whatever you please. This preparation answers all the purpose of gold leaf.

To Gild Letters on Glass.—Mix powdered gold with thick gum arabic and powdered borax. Trace your device with this on glass or china, and afterward bake it in a hot oven, the gum is thus burnt and the borax vitrifies and cements the gold to the ware.

To Make Gold Powder.—A gold powder, according to "Cooley," is made by rubbing gold leaf with sulphate of potassa in crystals, the latter is afterwards washed out. Another gold powder can be made by rubbing gold leaf on a marble slab with honey or molasses, and afterwards washing out the molasses when the gold will sink to the bottom.

Coloring Gold.—A solution of two ounces of alum, two of saltpetre and one of sal ammoniac is used for coloring. Another pickle used for coloring gold consists of nitric acid eight ounces, muriatic acid one quart, sal ammoniac two ounces, alum one ounce, and water two gallons. The articles of gold are dipped in this for a few seconds, then washed thoroughly in pure water and dried. Pale brassy gold may

be made to assume a deep redish shade by using such a pickle or "dip." The liquor employed by goldsmiths to color their trinkets is made by dissolving one part of sea salt, one part of alum, and two parts of nitre in three or four parts of water.

TESTING GOLD, SILVER AND DIAMONDS.

Jeweler's Gold.—Twenty-four carat gold means pure gold. Anything less than twenty-four carat gold indicates that there are so many twenty-fourth parts of pure gold, and that the remaining portion of an ounce of it is made up of an alloy of some inferior metal—usually copper or silver. Except for wedding rings, which are, or should be, made of standard gold, consisting of twenty-two parts or carats of pure gold, and two of alloy, jewelers seldom use gold of a higher rate of purity than eighteen carat. How often they use it of a much lower degree of fineness they know best. There is no doubt that it is possible to give almost any color to gold, by the addition of particular alloys, and of late, ingenuity has been at work to give the sixteen carat gold the appearance of pure gold. This is done partly by coloring in an acid bath; by means of which twenty-two carat gold may be made to resemble very closely native gold, as found in the shape of nuggets in California or Australia. Nuggets are never, however, found to be pure gold, being for the most part twenty-three or twenty-three and a half carat gold.

To Test Gold.—To test the purity of gold the application of heat is perhaps one of the simplest means. Pure gold will not be in the least discolored by it, while twenty-three carat gold will take a slightly red tint. There is this disadvantage about testing with heat, it will certainly discolor very materially all gold of less fineness than twenty-three carat, and nothing but the acid bath will restore it to its original hue. To effect this, place the article in an earthen pipkin, or gallipot, cover it with nitric acid, and hold it over a spirit or gas or oil lamp, or even a candle, until the acid boils. The metal will be restored to its original brightness.

To test the genuineness of gold coin, there is nothing equal in simplicity and efficacy to weighing it.

The testing of "Jeweler's gold," when used in the manufacture of many kinds of trinkets is a matter attended with considerable risk and difficulty, and perhaps the only means readily at the command of

the purchaser for ensuring a proper relationship between quality and price in such cases, is to ascertain the respectability of the seller.

Test for Gold and Silver.—A good test for gold or silver is a piece of lunar caustic, fixed with a pointed piece of wood. Slightly wet the metal to be tested, and rub it gently with the caustic. If gold or silver, the mark will be faint; but if an inferior metal, it will be quite black. Jewelers who purchase old gold often use this test. The relative value of gold and silver is as 1 to 15 11-27.

Coin Test.—Chrystalized nitrate of silver, one drachm, aquia distilled, or rain water, four ounces.

A shopkeeper, residing in Deptford (England,) appeared before the magistrate at the Greenwich Police court as prosecutor in a case of "smashing," and in his evidence stated that, having taken a vast quantity of bad money, he had at length discovered a certain test for silver coin. It was his invariable custom, on receiving a doubtful piece, to rub it with blue vitriol stone, and then slightly wet it. The effect is immediately seen; for if the coin be spurious metal, it at once turns black, but if genuine there is no alteration in its appearance.

Debased Gold Coin—Dangerous Counterfeits.—Filled coin in circulation, so well made that none but experts can detect them. The proportion of the filled coin is not large, as compared with the genuine currency; but it is nevertheless true that few of the men handling it know whether the coin is genuine or not, and the uninitiated can not possibly detect the work of the tamperers.

The system of filling, as now practised, is said to have originated some years ago in California, and was first detected in England in the process of melting the coin. The business is now, if possible, more carefully and also more extensively conducted. The process is to split the coin, to take from the centre one-third to one-half, and in some cases a larger proportion of the gold, which is carefully weighed, and an equal amount of platina, or alloy of platina, of an inferior quality, put in its place—in what manner is not precisely understood. The sides of the coin are then closed, the edge is re-milled, and all of the work is so accurately done that not only the weight of the piece remains unchanged, but the size remains the same, or so nearly the same that the difference is not perceptible; and what is most singular, the "ring" is perfectly clear. This test, therefore, which is generally employed to detect spurious coin, is quite useless, although some experts think they can by this means observe and detect the

filled pieces. The milling of the coin most frequently reveals its character.

To Detect Imitation of Diamonds.—The paste imitations of the diamond are known by different titles; sometimes as the "California diamond," Australian pebble diamond," etc.; but the basis of all of them is quartz or rock crystal, pulverized and fused in combination with the oxides of certain metals. The paste is technically known as *strass*, after the discoverer.

There are many signs by which this strass can be detected by the experienced eye. These signs are its inferior specific gravity, its want of hardness, and the absence of coldness to the tongue-test, or when it is applied to that organ.

Good strass is so hard that fire flies when it is rubbed on a file, but it is readily attacked by fine quartz sand on a grinding plate. The small air-bubbles in the strass may be readily detected with a good magnifying glass, and the breath remains much longer upon it on account of its bad conducting power than upon real gems. The electrical power of jewels is also another test, for it is stated that genuine stones retain their electricity from six to thirty hours, whereas the false stones retain it scarcely as many minutes. The appearance of some California diamonds will deceive many persons, for they have a luster and evanescent fire which is extremely beautiful. This is soon lost, however, by wearing; perspiration, moisture and dirt, washing the hands, &c., soon destroy the appearance of this paste, and in a few days it becomes as dull and lack-lusterless as the eyes of a dead fish.

It is said that chlorine decolorizes precious stones, but the diamond, ruby and sapphire resist its influence.

A SYSTEM OF DETECTING COUNTERFEIT, SPURIOUS, ALTERED AND PHOTOGRAPH BANK NOTES AT A GLANCE.

OUR design is to give a comprehensive knowledge of the elementary parts which enter into the construction of all bank notes, so that any person with proper attention may detect any *counterfeit* or *altered* note, with the certainty and readiness of an experienced engraver.

Four kinds of engraving are usually employed in the construction of bank notes, viz: Vignettes and portraits, lathe work oval denomi-

nations, medallion relief work, and lettering. Genuine engraving is executed only by those artists who *excel* in their particular departments, and all *counterfeits* by *inferior* workmen. Hence a comparison of the characteristics of a few specimens will enable any person to detect counterfeit bank notes.

GENUINE VIGNETTE AND PORTRAIT.

Notice the regular appearance of the lines and dots, the well-formed eyes, nose, mouth, hands and feet, and a perfect symmetry of beauty and finish. This is the highest quality of engraving, and consequently the best security against counterfeiting. It requires many years of study and practice by a person of natural talents to master it. For these reasons few become eminent. Engravers of a high order of talent never have been counterfeiters; not an instance being on record, either in the history of the Bank of England, or of banking in this country; therefore a counterfeit is always known by its inferior workmanship.

COUNTERFEIT VIGNETTE AND PORTRAIT.

Notice the uneven, irregular appearance of the lines and dots, the badly formed eyes, nose, mouth, hands and feet, and a general absence of beauty and finish.

GENUINE GEOMETRICAL LATHE WORK.

Notice the perfect regularity of the white lines and black dots, or in some cases of the black lines and white dots. Each row around the circle or oval must be perfectly uniform, being the work of a perfect machine, very difficult, if not impossible, for engravers to imitate by hand so as to deceive a practiced eye. To avoid alterations, notice that the work is perfect close to the figures and between every turn; and that there is an exact uniformity in the color of the ink and general appearance of the workmanship; as sometimes the entire lathe work is extracted, and a higher denomination reprinted.

COUNTERFEIT GEOMETRICAL LATHE WORK.

Notice the irregularity of the lines and dots. The utmost skill of the hand cannot equal the machine. Low figures are sometimes

scraped out and higher added with a pen or small brush. The work around the *outside* in such cases will be *genuine*, but notice the lathe work close to and between the figures, and it will appear uneven and scratchy. The entire oval is sometimes extracted, and a higher denomination *reprinted*. It can be detected by a general appearance of incongruity, and also by examining the letters, or holding the bill to the light.

GENUINE MEDALLION RELIEF WORK.

Notice a regular set of lines running entirely across the medal. The variation from strict parallel ruling gives the shading, and forms the relief figure. The shade is dark where the lines approach each other, and light where they diverge. See that the work in and around the figures is perfect—that it has not been scraped, nor additions made with a pen.

COUNTERFEIT MEDALLION RELIEF WORK.

Notice irregularity in the lines, and failure in uniformity of shade. The hand always fails to copy machine work, so as to deceive an observing eye. Familiarity with genuine work enables any one to detect counterfeits. Guard against alterations, as in preceeding example.

GENUINE LETTERING.

Notice the shading of the letters in the word "Bank;" it is done by a ruling machine; the lines are equi-distant, and of uniform shade. Notice in the writing perfection in the turns of hair lines. For alterations, examine well the name of the bank, the state, the location, and particularly the words "ONE DOLLAR." The genuine is always workmanlike and not crowded. Examine the *imprint* name of the engravers. It is always perfectly done in the genuine; and a counterfeit can be detected by imperfections in this alone, when all other tests fail.

COUNTERFEIT LETTERING.

Notice the imperfect shading in the word "Bank;" it is an attempt to imitate machine work by hand. Notice the writing; it is imperfect in the hair lines. If the name of the bank, state, or location is altered, some bad workmanship will appear. The imprint will be imperfect.

To become expert in the art of detecting, make yourself perfectly acquainted with the different kinds of engraving, the ink, printing, and paper of genuine notes. I would advise you to take five or six notes of different banks, also the treasury notes and postage currency, and examine each kind of engraving separately; first with a magnifying glass, then examine the same work without a glass—look *close*, as if you were determining the fine texture of *cambric* or *silk*—practice a few times in this way, and you will *educate the eye* to good work, and be enabled to detect the closest imitation. Study the engravers' names, *letter by letter*, the *regularity* and *softness* of ruled lines, the *uniformity* of lines and *undulations* of bass-relief work; study geometric lathe work, *circle by circle*, commencing at the center of the pattern; notice the *regularity* of *lines* and *fine angles* where they cross each other.

Examine the *stipple* or *flesh work* of portraits and human figures in vignettes. Notice the regularity of *lines* and *dots*, and how *gradually* they become fine from *heavy* to *light shades*; this work and the eye is the height of perfection in engraving. The other engraving can be examined without a glass.

Notice the perfect proportion of square lettering, the perfect down strokes, curves and hair lines, of round lettering, the countenance and perfect forms, drapery, &c., of human figures, the perfect anatomy of domestic animals, the agricultural implements, ships, marine views, skies, perspectives, &c., are all engraved true to nature and art.

An altered note from a broken to a solvent bank is done by extracting the name of the bank, the town, the state, and bank officers' signatures, and then printing in the parts extracted the title, town and state. They can be detected by imperfect parallel *ruling*, poor lettering, or by the difference of the *color of ink* in the parts *extracted*. They can also be easily detected on the same principle as you would examine the texture and luster of cloth or silk. Examine the *face* of the note, hold to the *light*, or glance across the *surface* of the note.

An altered note from a lower to a higher denomination is done by extracting or scraping out the lettering and figures from broken banks and pasting over the parts extracted. This can be detected on the same principle of alterations from broken banks. Examine the *face* of the note, hold to the *light*, glance across the *surface* of the note.

Spurious notes are unlike the genuine, some of them are all counterfeit, some lithograph, and some have a few genuine dies. With those done by lithograph the lines have a rough or filey appearance. About three-fourths of the spurious notes can be detected by the imperfect red let-

tering, poor ink, printing and paper, and the best spurious notes can be detected by imperfect lettering, especially the town, state, and *engravers' names*.

Counterfeit notes are imitations of the genuine, and all the engraving and printing is done by one or a few counterfeiters. Some have a suspicious look, owing to poor ink, printing or red lettering, lathe work, or vignettes and portraits, and the best specimens by the fine engraving, the *ruling, lathe work, bass-relief work, dots and lines of flesh-work*, or by the *engravers' names*.

You will observe that altered, spurious, and *counterfeit notes* can all be detected by imperfect letters. You will see the importance of examining bank notes on the following system :

First. The title, denomination, town, state and signatures.

Second. Geometric lathe and bass-relief work around the counters or figures.

Third. Vignettes and portraits.

Many banks notes have the comptroller's or auditor's die. This die is perfectly engraved, and should be examined with much care.

Red letters and figures in the center of the note are used to prevent alterations ; they are well printed, and, with a few exceptions, they are printed on the *face* and *back* of the note, and the net-work of lines appear as if the ink went through the paper.

Photograph notes could deceive no one accustomed to handling paper money. They have a reddish brown or purplish appearance, not that jet black, rich gloss of engravers' ink. Very few of these frauds have been put in circulation.

The treasury notes, postage currency, and notes of the national banks will all be closely counterfeited. They offer two or three hundred times the temptation to counterfeiters of any common bank notes, and all good judges of engraving will agree that they are as easily counterfeited as many of our other bank notes. The first issue of the counterfeits may be coarse in some points, and the second and third issues close imitations. This game has been frequently practiced by counterfeiters for the purpose of procuring the aid of the bank note lists to cheat the business community with the second and third issues.

This system of detecting is principally based on the inventions and improvements introduced in bank note engraving by Mr. Perkins, of Massachusetts, and Mr. Spencer, of Connecticut, about forty-eight years ago. With these and other improvements, no combination of counterfeiters, or even other bank note companies, with their machinery, skill, &c., can perfectly imitate our bank and treasury notes.

Thompson's Reporter says of altered notes: "These are frauds we do not pretend to keep a run of." *Peterson's Detector* says: "We would advise our subscribers to examine all large notes with care, and not depend wholly upon any bank note reporter, as bank notes are being altered and counterfeited daily, in some parts of the country, and therefore are issued before they are known to be in existence by any detector."

In short, every person will see the importance of studying genuine bank note engraving for his own protection, and every moral man should lend his aid to suppress the evil of counterfeiting.

Bank note engraving, as a study of the fine arts, is interesting to every intelligent American. Our bank notes exhibit the high degree of perfection to which our countrymen can attain in the fine arts when well sustained. All the mechanical designs and safeguards to be found in the notes of this and other countries, are all of American skill and ingenuity. All the essential improvements were patented forty years since.

A perfect acquaintance with the different kinds of engravings on one genuine note gives an acquaintance with all genuine bank notes in the United States and Canada.

THE MYSTERIES OF "STERLING EXCHANGE."

The quotations of foreign exchange puzzle many persons, Why exchange should range from twelve to fifteen per cent. higher than gold, seems unaccountable until an explanation of the matter is given.

The fact is, that the "par of exchange" is not based on dollar for dollar, or on a slight addition to cover the cost of transportation, but other considerations enter into the calculation. The par of sterling exchange is $109\frac{1}{2}c.$, nearly.

The original standard of value of a sovereign, or pound sterling, was \$4 44.4 in United States coin. Subsequently the American dollar was more heavily alloyed or depreciated in gold value. Thus depreciated, it required \$4 86 to make a pound, which was $9\frac{1}{2}c.$, nearly, more on every dollar than when the pound was \$4 44.4; or if the pound sterling were divided into decimal coin, it would take $9\frac{1}{2}c.$, nearly, to make one of the dollars of alloy of the United States equal to one of the dollars of the alloy of great Britain. In other words, the English dollar would be $9\frac{1}{2}c.$ finer than the American.

The system of computing on this relative difference in the fineness of the coin of the two countries causes much perplexity and inconven-

ence; and should Great Britain and the United States, whose trade relations are so intimate naturally, ever again make a united effort to simplify and render more uniform commercial usages, nothing would be of greater importance in that direction than to agree upon a decimal coin currency of equal value in both nations.

ON FARMING.

The Farmer.—If there is a man who can eat his bread at peace with God and man, it is that man who has brought that bread out of the earth by his own honest industry. It is cankered by no fraud—it is wet by no tear—it is stained by no blood.

The young man who leaves the farm-field for the merchant's desk or the lawyer's or doctor's office, thinking to dignify or ennoble his toil, makes a sad mistake. He passes, by that step, from independence to vassalage. He barter a natural for an artificial pursuit, and he must be the slave of the caprice of customers and the chicane of trade, either to support himself or acquire fortune. The more artificial a man's pursuit, the more debasing is it morally and physically. To test it, contrast the merchant's clerk with the plow-boy. The former may have the most exterior polish, but the latter, under his rough outside, possesses the truer stamina. He is the freer, franker, happier and nobler man. Would that young men might judge of the dignity of labor by its usefulness and manliness, rather than by the superficial glosses it wears. Therefore we never see a man's nobility in his kid gloves and toilet adornments, but in that sinewy arm, whose outlines, browned by the sun, betoken a hardy, honest toiler, under whose farmer's or mechanic's vest a kingliest heart may beat.

The sun that only burns the brows of other men turns the work of the farmer's hands to glory and gold. The rains that bring discomfort to others, are beating the reveille of life and plenty for him.

No one has a better opportunity of witnessing the wonderful workings of God in the wide field of nature than the farmer. His occupation brings him every day in full view of them. He is familiar with the progressive development of the young plant, and the matured beauty of its full growth. He is well acquainted with the sunshine and the shadow, the softly falling dew and the heavy rain, the gentle breeze and the rushing tempest. Some, from their very familiarity with these evidences of Divine wisdom, lose all interest in them, and

look on them with little more regard than the beasts that perish. Others, indeed, recognize the hand of God; look on its movements with awe and dread—but go no further. But it is only the Christian that can see in everything the hand of a father. Other men may wonder and admire; he can love and praise. Everywhere he sees the finger of God, and he rejoices to know that God is his friend; and when in the tempest or thunderstorm, men's hearts are failing them for fear, he can be in peace, knowing that he is a son of Him whom the winds and the seas obey. Truly the Christian farmer possesses greater pleasures and more exquisite joys than other men have any idea of, and if they have not experienced these they have never experienced true happiness.

How blest the farmer's simple life,
How pure the joy it yields!
Far from the world's tempestuous strife
Free mid the scented fields.

Farming.—Rev. Thomas Starr King, in an address before the Agricultural Society, in San Francisco, utters the following beautiful sentiments:

In dealing with the land, man is called to be a co-worker with the Infinite Mind. This is the foundation of the nobleness of the farmer's office.

The air is given to us. We can not alter its constitution or change its currents. The sea is not placed under our dominion. We can not freshen it, or increase its saltness; we cannot level or raise its billows. The rain is ordained for each latitude, and we cannot hasten or vary the bounty of the clouds. Minerals are provided in a definite, unalterable measure, by the creative force. But the soil we can make our own. We can increase or renew its richness. God does not make it to be a fixed or self-perpetuating blessing, like the atmosphere and the ocean. It is a trust. So much he will do for it; but a very great deal is left for us to be faithful in. In the management of the soil the Creator takes us into partnership; and on our fidelity within the bounds of our trust, the progress of society depends.

The greatness of the trust is seen in this—that agriculture requires the greatest amount and variety of knowledge, and is everywhere latent in its development. We are only now entering upon the study of it. Nation after nation has withered and shriveled, because it could not manage its land—because it had not science enough, virtue enough, to organize the State. Its prosperity is not rightly based. Its roots are

feeble. It has begun to die. It is not able to sustain the tremendous partnership with Providence in making the soil creative.

In fact we shall not reach the right point for appreciating the eminence of agriculture as a duty, a profession and a trust, until we see that the earth is not yet finished. The Creator has left part of the fashioning to man; or rather waits to work through man in perfecting it. The air comes up to the Divine idea. The sea also answers to the majesty of God's first conception of it. The clouds correspond in their charms of form and glory of color to the archetypes of them in the Divine Imagination. The highest mountain tops, of splintered crag and dazzling snow, cannot be improved, any more than they can be altered by the power and wit of man. But the earth does not fulfil the Divine intention. It was not made for nettles, nor for the manizito and chaparel. It was made for grain, for orchards, for the vine, for the comfort and luxuries of thrifty homes. It was made for these through the educated, organized, and moral labor of man. As plow runs deeper, as irrigation is better understood and observed, as the capacities of different soils are comprehended, as types of vegetation are improved, as economy in the renewal of the vitality of the land is learned and practiced, the process of creation goes on; chaos subsides; the Divine power and beauty appear in nature.

Agriculture is the foundation of national prosperity, and one of the pleasantest as well as one of the noblest and most profitable pursuits in which a man can engage. Wherever agriculture flourishes, all other branches of business prosper. Where it declines, everything else goes down with it. The progress of Agriculture, said Louis Napoleon in a recent speech, ought to be one of the objects of your constant care; for upon its improvement or decline depends the prosperity or decline of empires.

Dr. Franklin said: There seem to be but three ways for a nation to acquire wealth. The first is by war, as the Romans did, in plundering their neighbors; this is robbery. The second by commerce, which is frequently cheating. The third by agriculture, the only honest way, wherein a man receives a real increase of the seed thrown into the ground in a kind of continued miracle wrought by the hand of God in his favor, as a reward for his innocent life and his virtuous industry.

The Farmer's Wife.—Is there any position a mother can covet for her daughter more glorious than to be the wife of an honest, independent farmer in a country like this? To be the wife of one who is looked up to by his neighbors as one whose example may be safely followed—one whose farm is known far and near as a model of perfection and

cultivation. To be mistress of a mansion all her own, that she may be the envy of every passer-by, because it is neat and comfortable, a sweet lovely cottage at home.

In a little book recently published in France, entitled "Advice to Young Ladies who intend to become Farmer's Wives," the author, M. Bodin, says: In order to become a farmeress it is not sufficient to know how to read, write, calculate, and sew. Order and economy in a house are of more importance than the cares of cultivation properly so called. On the farmeress depends for the most part the success of an agricultural enterprise. If a cultivator secures good crops, and if his granaries are filled, his wealth will, nevertheless, not be real in presence of a badly directed household, or from want of care the outlay will be double, and the economy *nil*. Be then thoroughly persuaded, young girls, that your mission is most important, that your good direction may make everything succeed, and that negligence or even indifference, may bring about disunion, annoyances of every kind, and, finally, ruin. The farmeress, surrounded by her family, infusing order into everything, will be loved and respected, and will probably live more happily than many great ladies.

The Farmer's Home.—The *New York Tribune* says: One of the strongest, if not entirely the strongest, inducements for the sons and daughters of farmers in general in this country to leave the country for a city life, is the neglect of parents to beautify home and teach children to love it because everything around it is more cheerful, more beautiful, more pleasant, more enticing than any other spot known to them. To prevent the exodus of your children, the moment they get old enough to have ideas of their own, let it be one of the life studies of every parent to make the children sensible that their home is equal, if not superior, in all that serves to make life worth living for, to that of any other family in the same station of life. If your house is small it is all the more easily painted, and made to wear an attractive outward appearance, and it is no good reason, because it is small, that its interior should be most inconvenient, uncomfortable and unattractive. Study to make your house such in every respect that your visitors will say, "What a lovely place," and you will make your children contented and yourself happy, and all will exclaim, "There is no place like home." Is there any one thought likely to be called up in after years so pleasing as the remeniscences of a happy childhood's home?

Have a Permanent Home.—Stay where you are. Do not live and work on your farm, with the expectation or wish to *sell out*. Nothing will keep a man so much in a state of indecision. Living from day to

day, with the idea that just as soon as you have a chance, you are going to sell, is one of the poorest ways of getting along. Make up your mind to stay where you are. Apply energy and headwork to your operations; determine to make a home—one for yourself and your family—have a marked and definite purpose in life.

The Farmer's Ambition.—A practical farmer whose livelihood depends on his calling, should make it the pinnacle of worldly ambition to excel in it. If he neglects his farm for almost everything else, he is generally a miser both in interest and credit. Solomon, the wisest observer of men, tells us of his disgust at the sight of a slovenly farmer: "I went by the field of the slothful—and lo, it was all grown over with thorns, and nettles covered the face thereof, and the stone wall was broken down."

Farmers and Science.—For all practical purposes true science is a thorough knowledge of a man's own business. And a farmer who knows how to make the most profit with the least amount of labor and capital, who understands how to make the most of his land without impoverishing it, but rather continually improving it, is truly scientific.

"Book-Farming."—No sensible man ever contended, or supposed, that book-knowledge *alone*, would make a man a good farmer. "Practice makes perfect"—practice alone. But a knowledge of principles is the true and solid foundation of correct practice; and principles are vital in agriculture as in everything else.

The great want of farmers is more information. And there is no class of people more anxious to obtain information in relation to their business which may be depended upon.

Even the most prejudiced contemner of "book-farming" does not absolutely refuse to profit by the experience of others; if he is about to try some new root or grain, he asks his more experienced neighbor how the grain should be prepared; where the seed should be sown; how the grain should be tilled, etc.; and is governed, to some extent, in his culture by the answer he receives. "Book-farming" is mainly the collected experience of the wisest and most successful farmers through years, if not generations, collected and recorded in such form as to be most available for those who come after. If one man's experience or conclusions have any value, those of many men, compared and averaged, should have far more value; and whether printed in a book or related by the fireside, matters little. At least, if there be a difference, it is not against "book-farming." The wisest farmer can

not know everything that would be useful in his calling ; there must be some department in which his knowledge might be improved. What more reasonable, then, than that he should consult and profit by the recorded experience of others ?

But no man was ever made wise solely by imbibing the wisdom of others. Books, and periodicals, and lectures, can only *help* the farmer. In farming, as in everything else, *mere* book-learning is imperfect and unsafe. Let the head and the hand go together ; let practice modify the directions and enlarge the uses of theory ; let us appropriate the wisdom of others without expecting it to enable us to dispense with sense of our own.

A popular friend of Agriculture said in an address recently : I wish the statement could be made to ring in the ears, and penetrate the brain, and stir the heart of every man, woman and child, who is the friend of agriculture—that *the radical means of improvement is the more perfect education of the farmer for his profession.*

How to Secure further Agricultural Improvement.—The following valuable suggestions are from an Agricultural Address by the Hon. L. Chandler Ball :

How the necessary conditions to further agricultural improvement shall be secured, and farmers take the rank, exert the influence, and receive the honors to which, by their contributions to social order, and the welfare of the state they are entitled :

1. By adopting a higher standard of education, both general and professional.
2. By a more thorough cultivation of the soil, by which its fertility shall be increased, and permanently maintained.
3. By a more general introduction of improved implements of husbandry, by which farm and household labor may be more easily, and more economically performed.
4. By improving the breeds of domestic stock, and rearing only those animals which are the best of their respective kinds.
5. By growing only those roots, grains, grasses, and fruits which are the most nutritious, and the most productive.
6. By pursuing that particular branch of husbandry which gives the strongest probabilities of success ; having reference to climate, soil, markets, and amount of foreign and domestic competition.
7. By making the business of farming attractive to educated men, and the farm-house and all its surroundings pleasant to refined taste and cultivated manners.

Rules for Making Farming Profitable.—One whose conclusions have been founded upon experience, thus writes to the *Prairie Farmer*:

1. Buy no more land than there is capital enough to pay for, with one-third more surplus. A small farm, free from debt, with plenty of means to stock it, enrich it, and carry on its work, will yield more than a large one, encumbered with debt, conducted feebly in every part, with bad fences, poor implements, bony animals, weedy fields, and thin crops.

2. Lay out the fields in the best order, so as to admit of a systematic rotation, and to give ready access to every field at all times, without passing through other fields, if possible.

3. Provide good fences, and necessary gates, and valuable time will not be lost in driving out intruding animals, nor crops lost by their depredations.

4. Furnish good farm buildings, to secure properly the crops, and also to afford a good shelter for animals.

5. Select the best animals in purchasing, and secure the *very best* the country affords to breed from. Also select the best implements that can be procured at reasonable prices.

6. Bring the soil into good condition, and keep it so by a judicious rotation.

Mr. Bakewell, of England, says: The road for the farmer to get rich is to breed the best kind of cattle, sheep and horses, and the road to grow poor is to breed the worst of their kind: as the best consume no more food than the worst. Good farming is getting a dinner for your appetite, whilst bad farming merely gains an appetite for your dinner.

An agricultural paper says: Every extra dollar spent in deep and thorough plowing will return five dollars in the harvest. One acre thoroughly manured and cultivated yields a larger per centage of profit than three sparingly manured and slovenly scratched over. It is as easy to raise good varieties of fruit as poor ones. A choice pear tree will produce from ten to thirty dollars worth of fruit. How much will ten poor ones produce?

As a general rule, *good crops pay, while poor ones do not.* The first effort of a farmer should be to increase his crop per acre, if not already large, rather than to increase the number of his acres. A thousand dollars judiciously expended in fertilizing and subduing his present farm would enrich him far more than the same amount expended in buying more acres.

Errors to be Avoided.—How many farmers are to be found who can

plead "not guilty" in reference to some one or more of the following errors to which the *Country Gentleman* calls attention?

1. Allowing weeds such as thistles, docks, stramonium, poison hemlock, etc., to grow along the highway.

2. Allowing elders, burdocks and nettles to grow along fences, and Canada thistles, foxtail, pig weed, rag weed, etc., to grow among and sometimes eclipse crops.

3. To plow, harrow, and seed, or plant, land so wet that year after year it yields scarcely enough to pay tillage.

4. To allow boards to become knocked off board fences, and clapboards from barns; and the hinges of gates to become so deranged that they must be laboriously dragged over the ground in opening and shutting, quickly wearing them out.

5. To pile manure against the side of the barn until it rots, and mires the cattle, instead of spreading it for crops and leaving a neat clean yard.

6. To admit pigs to door yards to root up the grass, and help themselves to swill at the kitchen door.

7. To throw kitchen slops into a puddle at the back door.

8. To build barns on the public road, thus making a barn-yard of the highway.

9. To scatter implements, such as plows, harrows, rollers, etc., about the barn-yard or along the sides of the road, exposed to all weathers.

10. To throw rubbish, brush, etc., into the public road, to the offence of every traveler who has any appreciation of decency, instead of destroying or converting these materials into manure.

11. Badly built board fences, half lifted by frost out of the ground, and leaning half over—occasioned by a shallow and careless setting of the posts, and by not draining the holes.

12. Cornfields with a dense undergrowth of weeds, and potatoes with a dense overgrowth of the same.

13. Hedges and trees planted and allowed to grow up with grass, and consequently never being good for anything—instead of giving them good and broad cultivation.

14. Allowing cows and other animals to run in the streets, to pilfer from neighbors, and dry up by being frequently lost at milking time.

Farm Management and Farm Accounts.—The farm should be so managed as to pay for all labor bestowed upon it, and ultimately for itself. Improvements that do not pay, ought, as a rule, to be discarded; and in order to know how the matter stands, every farmer should keep an exact account with every field on his farm.

No man can be a good farmer and a successful one who does not keep accurate accounts; be able to tell at the end of the year every dollar that came to hand, and what for, and every one that goes out, and why it went; and balance your cash account at least once a month—once a week is better.

Keep accounts with everybody, debit and credit, and in some degree with everything. Number your fields, and charge each with manure, seed and labor, and credit the crops, and you will soon find which is the most profitable. Open an account with your stable, your pig pen, your pasture, and with your general stock and with different classes and branches of it, if you would learn with accuracy which is the most profitable.

To be successful, you must be accurate, and that you cannot be without account books.

In any other branch of business worthy of the name, any one carrying it on without a proper system of books would be regarded as crazy. The ordinary excuse of "want of time" is entirely without foundation. An hour a week devoted to a simple and well arranged system of accounts would be sufficient to keep them up.

That excellent work, *Stephen's Book of the Farm*, says: Let the farmer take an inventory and valuation of his live stock, implements, crops, cost of labor, and debts due to and by him, at the beginning of every agricultural year, and he will see whether his capital has increased or diminished in the course of the year—it will increase by a larger produce and by a higher price, and diminish by a scantier produce and a lower price. Let him keep a cash book, which will inform him whether he has received or paid away most cash in the course of the year. Let him have an account with the farm, by which he will learn whether the value of the produce he has been able to dispose of is greater or less than the cost of conducting the farm. It is clear that a knowledge of these particulars must acquaint the farmer with the real state of his affairs at the beginning of every agricultural year.

Farm Economy.—Allow me to say to young farmers especially: Let us be studious and inquisitive, as well as laborious; let us be simple and frugal in our habits; avoid useless expenditures; leave fine dress and fast horses, and showy dwellings to those who really need such things to recommend them. Let us ever remember that for health and substantial wealth, for rare opportunities, for self-improvement, for long life and real independence, farming is the best business in the world.

Economy is essential to success. Judge Peters, in his valuable "*Notices to a Young Farmer*," published some years since, says: Do not commence with erecting costly buildings, but apply your time, efforts and pecuniary means to your farm. Want of calculation in this respect has been the ruin of many.

Industry, prudence and economy are essential to ensure success in any business whatever.

True economy does not consist in mere saving and stinting—it requires far-reaching views and a generous spirit to decide practical questions upon that just basis which secures the greatest measure of success. We must look further than the first cost. In farm stock, for instance, when once secured, it costs little more to raise, to any given age, a good animal than a bad one, while one may be far more remunerative than the other.

There is no economy like doing everything thoroughly. More profit can be realized from one acre well manured and thoroughly cultivated than from two but half prepared for seeding. It is better to till fifty acres well, than one hundred in a slovenly manner. It is not the abundance of land, but the thorough and skilful cultivation of it, that fills the barn with hay, the cribs with corn, and the mansion-house with plenty. The great principle of agriculture may be reduced to these two points: *Keep small farms and manage them well.* Rev. J. Starr King gave to the California farmers this very sensible advice: "Subdue the lust for immense ranches. If you have fifty acres and burn for fifty more, annex the fifty that is beneath those you now own, and gain your title by a subsoil plow. Own deep thus by agriculture, not wide by scratchiculture."

"A little farm well tilled, a little barn well filled, a little wife well willed."

The Produce Market.—An important feature in successful farming is judicious marketing. Many farmers must sell as soon as possible, but it is desirable to have good facilities for reaching the market, and also to be so forehanded as not to be obliged to sell when fair prices can not be obtained. The farmer can then watch the market reports and study the probable home and foreign supply and demand, and determine with considerable accuracy when it is best to sell. The farmer who gets one dollar per bushel for his wheat, realizes double the profit that he does who only gets eighty cents, providing the cost of producing is with both sixty cents per bushel. It pays to study marketing well, and also to prepare and put in the best manner all perishable produce, such as butter, poultry, fruit, pork, vegetables, etc.

The great value of land is not its richness; the great source of profit is not the great crops produced, but the market for that produce; and land is valuable just in proportion to its contiguity to a place where its produce can best be sold. It ought to be a leading feature in the calculation of every land purchaser, Where is the market? Every producer should also keep this question constantly before his eyes, and shape his productions accordingly. Before the age of railroads, the price of wheat in the interior of Indiana and Illinois was twenty-five to thirty-five cents a bushel, "store pay." It was not a cash article, because there was no market. Indian corn was still more a cheap drug on hand, and many a "broad horn" has been loaded upon the Wabash and other rivers for the far off New Orleans market with corn at six to ten cents a bushel. The strongest incentive to high farming is a high market.

PLOWING, DRAINING, FERTILIZING AND FENCING.

Plowing and Subsoiling.—It has been asserted that an increase of one inch in the average depth of plowing throughout the United States would produce a larger amount of profit, as compared with present results, than all the gold received from California. A good plan is to increase the depth of plowing, as nearly as practicable, one inch every year until the subsoil is loosened to the depth of at least twelve or fifteen inches. This will enable the land to hold more water to support the crop in time of drouth, and the water will settle from the surface during an excess of wet. Deep plowing saves manuring.

The subsoil plow is now becoming one of the most important implements upon the farm. It is used to run in the bottom of the furrow before the potato is dropped, to loosen the earth under the seed, to admit the air and permit the surplus water to sink; and after the potatoes are up, a one-horse subsoil plow is run between the rows; and when properly done, it is equal to trenching with a spade. It is also run between the rows of corn when the corn is about four inches high. This will lift the soil slightly, and also the young corn plants, but will not separate the particles of earth from the roots. This will be a more thorough disturbance of the soil than a dozen hoeings, and will permit the corn roots to descend in search of food. In raising carrots, beets and turnips in heavy ground, it is almost indispensable.

An old friend says he has been greatly benefitted by deep plowing,

and not being able to own or hire a strong team, he adopted the plan of running the same plow twice in one place, and is sure that the extra work was much more than paid for by an increase in crops. By this plan he plowed a stiff sward twelve or fourteen inches deep, and got a good tilth on the top of the reverted sod, which remained undisturbed through several years of cultivation, and crops were more free from the effects of drouth than ever before.

Draining.—All lands that will not allow the water to pass through the subsoil, should be properly drained, as water running off the surface carries away the vegetable matter, and thus impoverishes the land.

To ascertain where draining is required, dig holes into the earth two or three feet deep—post-holes often answer—and observe if water remains in these holes during the wettest periods. If it soaks away within twenty-four hours through the porous subsoil, and leaves the bottom dry, then draining will be wholly unnecessary. But if the water remains several days, then artificial channels will be required to carry it off.

The principal benefits of drainage are the following: It prevents washing, by admitting a sudden fall of rain quickly into the ground, leaving little to run off. It enriches the soil, by causing it to absorb the rain quickly, to lixivate them and to retain for the use of plants their carbonic acid, ammonia and other manurial matters, instead of running them off, together with some of the richest top soil, into a neighboring brook.

Prof. Mapes says: In England there is not a field that has been under-drained that has not doubled in value, and so it can be here.

Cheap Method of Cutting Ditches.—Plow two furrows with a common plow as deep as you can; then take a subsoil plow, with a piece of plank four feet long attached to the mold-board, for the purpose of raising the dirt, and go through twice with this, which will leave a ditch two feet deep.

Requisite Depth of Under-draining.—John Johnston, the pioneer of under-draining in New York, says: If practicable, drains should go so deep that the water may come in at the sides, instead of rising from the bottom of the ditch; and this I have found to be the case at from two and a half to three feet deep on my farm. In England the depth for under-draining is from three to six feet.

How to Clean out an Obstructed Drain.—This has been successfully effected by using a large eel, which works itself slowly through, followed by the water.

▲ *Fertilizing and Fertilizers.*—It is a maxim among an excellent class of farmers, that a good farm, like a good joint of meat, only requires basting with its own dripping.

Of all the waste upon a farm, perhaps there is none more apparent than that of manures; none other so generally and directly prejudicial to success in farming, and none other of anything like the same extent can be so easily prevented. Professor Voelker found by accurate experiments that manure lying in the yard exposed to all weathers, lost in value two-thirds; only one-third remaining in one year. Johnson and Sprengel, learned agricultural chemists, say that a cow annually voids about 16,300 pounds of urine, which contains 961 pounds of solid matter quite equal in value to Peruvian guano at \$60 per ton, making the annual commercial value of the liquid manure of the cow to be \$28.83; no inconsiderable portion of her whole value; a cord of loam saturated with urine is equal to a cord of the best rotted dung. The manure from poultry, if they are confined, is as good as guano; that from the house is the most valuable, and if mixed with fresh loam is completely deodorized. Bones thrown into a barrel, covered with ashes and moistened, will after a while, become a valuable fertilizer. Hard coal ashes, if screened thoroughly, are worth saving to spread on grass land with lime and wood ashes. Wood ashes form one of the most valuable of all fertilizers, and are safer at common prices than any other to be purchased. Soap suds are invaluable applied to trees, shrubs, plants, etc.; no article of a liquid nature possesses more powerful fertilizing properties. The carcasses of animals which die from accident or disease on the farm possess a manurial value seldom fully appreciated. It has been said that "every pound of animal carcass can impregnate ten pounds of vegetable mold, or, taking our arable soils as they usually occur, one pound of flesh, fish, blood, wool, horn, etc., can fertilize three hundred pounds of common loam." Every portion is valuable. Bones, hoofs, hides, hair, flesh, may all be applied with benefit to the soil.

In England salt is recognized by government as a manure of such value that it passes turnpikes toll-free, and it is used by farmers at high prices. It may be used from five to fifteen bushels per acre. It always does best on land that has been limed. It is useful in all compost. Prof. Mapes says: If you slack three bushels of lime with the solution of one bushel of salt, it is the best thing ever used to decompose muck. It is excellent upon the roots of peach trees.

It is estimated that England pays annually three hundred millions of dollars for manures, more than the entire commerce of that country.

Liquid Manures.—Daniel Webster had the plank in his stable floors laid about an inch apart, and so arranged as to be easily taken up. Beneath this floor, about two feet of muck was placed, which absorbed every drop of the urine, and furnished a rich manure.

Said an English writer, more than a century ago, The drainage of dunghills is the very strength and power of the dung.

Of all methods of using muck, says the *American Agriculturist*, we are best pleased with it as an article of bedding for cattle. This we think the best and most rapid way of manufacturing it into manure.

Dry sawdust, says a correspondent of the *New England Farmer*, is one of the best articles for bedding horses and cattle, to take up the urine and keep the cattle clean. But hard wood sawdust is the best, and should be used freely for bedding, even if you have to go miles for it; it will answer every purpose of going to Peru for guano. Sand has also been used with great satisfaction.

Covered Manures.—It is stated in the *Journal of Agriculture* that an experiment has been made to determine the relative value of manure made under cover, and that exposed in the barnyard. Both manures were applied to potatoes in equal quantities. The yield on equal portions of land was as follows; manure from barnyard, 252 bushels per acre; manure made under cover, 297 bushels per acre.

Says the *American Agriculturist*: The farmer must prosper, if at all, by savings as well as by gainings. If the banker's vault should have only a small hole where his deposits could be constantly filched away, it would diminish his annual gains decidedly. So, if the farmer's stock of manure is continually wasting in sun, and wind, and rain, he is a great and continual loser.

Manure mixed from time to time with straw, leaves, and other refuse matter, in the open barnyard, is better than that which is uncared for; but dung, both liquid and solid, carefully saved in a covered pit, and mixed every few days with plaster, charcoal dust, dry muck, etc., absorbing every particle of urine, and preventing the escape of ammonia, is better still.

The best substitute for lack of cellar is a covering of earth or muck for the manure as fast as it is collected. Where straw is plenty, as in the wheat growing districts, it makes a very good covering for manure.

Spreading Manure on the Surface.—A writer in the *Edinburgh Journal of Agriculture*, commenting on the views of Prof. Voelcker as to the exposure of fresh manure on the surface of the ground, relates

the following striking experiment, made by a scientific man, for the purpose of testing expressly the several methods of using manure :

There being a difference of opinion among scientific men regarding the advantage of spreading dung upon the surface and leaving it exposed for some time before covering it in, Prof. Legnitz, of Eldens, had recourse to experiment for the solving of the question. For this purpose he divided a lot into four equal parts. To No. 1 no manure was given. No. 2 received about two tons of farmyard dung, which was spread immediately, and covered in by means of the plow. No. 3 was treated in the same manner, with this difference, that the hoe was used instead of the plow. The same quantity of dung was carried to No. 4, and allowed to remain spread three weeks on the soil before being covered in by the hoe. On the 10th of October, the four lots subjected to experiment were sown with about ninety-five pints of rye each. The following are the total results of the crops of each lot, grain and straw included : No. 1 produced 583 pounds ; No. 2 produced 770 pounds ; No. 3 produced 818 pounds ; No. 4 produced 930 pounds.

How to Dissolve Bones and Make Super-phosphate.—To make a good article of super-phosphate from bones, says the editor of the *Southern Field and Fireside*, you should use about half as many pounds of sulphuric acid as of bones, dry weight ; break the bones as fine as you can with an old ax or sledge-hammer, or have them ground, when they should be wet by the free use of water boiling hot, adding half as many pounds of sulphuric acid as there are of dry bones. The half of a molasses hogshead will perhaps be as convenient and cheap for operating in as anything. To the bones and boiling water in this vessel, or some other, add slowly the acid, and stir the mass constantly, as the acid is poured in. A powerful boiling takes place from the escape of carbonic acid from the bones, which gradually subsides by occasional stirring ; the bones in a week or ten days become like paste, when the whole can be taken out and mixed with perfectly dry loam, or charcoal dust, to fit it for drilling with a machine. Where bones are large, or the acid weak, it may take a month to dissolve their earthy matter ; and this end is promoted by covering the large tub or half hogshead holding the bones and acid with several loads of fermenting loose dung to increase the temperature, where heat is an important element of chemical action, as the acid sells high in this country. Some use only 100 pounds to 300 pounds of dry bones. Any bones or pieces not softened, compost with fermenting stable manure, whose heat and carbonic acid will slowly dissolve them.

Solon Robinson says : Break the bones as fine as possible with a

hammer, and put them in five gallons of water, with one gallon of sulphuric acid. Handle the acid with care. A good thing to use it in is an old kettle, painted thickly on the inside with some earthy paint.

A Scotch farmer gives his rule as follows: Add 340 pounds of sulphuric acid to 25 bushels of fine bones, and wet with 18 gallons of boiling water. Let it stand two days, and then mix the bones with two cart-loads of fine mold, where they heat and become fine powder in the course of six or eight weeks. Bones will become fine if broken and mixed with ashes or fine mold, and kept moist.

Sulphuric acid (oil of vitriol,) is very corrosive, and must be handled with great care. A large iron kettle, painted with a thick coat of earthy paint, or even clay dissolved in skim-milk is a good vessel to dissolve bones in.

The best and cheapest method of preparing bones for manure, says the *Country Gentleman*, is first to boil them in strong lye a few hours to extract from them the animal matter, or, what would be more convenient, perhaps, break them as fine as convenient, and put them into a tub of lye, to remain there during pleasure, until the animal matter is all extracted and incorporated with the lye. The mineral part of the bones will now be found very friable and easily pulverized. They should be rinsed clean, pulverized, and put into another tub or trough. Apply to them some diluted sulphuric acid, in the proportion of one of acid to five of water. Stir them frequently, and in a short time they will be entirely decomposed and fit for use. These two masses, being equally rich in the elements of fertility, the one of ammonia and the other of phosphorus, are equally valuable as fertilizers, and adapted to any and every variety of soil that may be deficient in these elements, are equally necessary for the healthful maturity of every growing plant, whether of grain, grasses, fruits or roots. I now advise a mixture of these two masses with the general compost, to secure a general diffusion of them upon the different fields to be manured.

A correspondent of the *Valley Farmer* says: Put the bones in a kettle and cover them with ley; if the weather is cold, warm occasionally for a few days. The bones will become a soft pulpy mass. Here you have precious stuff. Dilute this, and you will have a liquid manure that will produce growth that is almost a miracle. Add as many buckets of water to one of ley and soft mass of bones as you like; the less water, the less labor; or mix it with muck; the muck will be manure. By all means save the bones.

Use of Kitchen Slops.—The water from the kitchen is rich in elements of fertility. The soap used in washing, pot-liquor, salt, &c. are

all needed by the garden and will amply repay for saving and applying to the plants. Let the kitchen waste be collected in a sunken hog-head or cistern, and applied in a liquid form, to the plants in the garden, or run it to a convenient distance from the house to an excavation which can readily be supplied with muck, which will absorb the liquid, and many dollars worth of manure otherwise annually wasted, will be saved.

Manure Maxims.—Manure-making and money-making are almost synonymous terms on old farms, says the *American Agriculturist*.

Says Victor Hugo, If our gold is filth, on the other hand our filth is gold.

Chaptal says, The action of leached ashes is most powerful upon moist lands and meadows, on which they not only facilitate the growth of useful plants, but if employed constantly for several years, will free the soil from weeds. It is said that in Germany no other manure is used for grass lands.

For over-rich garden soils use an application of lime and salt mixture.

It is an old adage: "He who marles sand may buy the land." "Marle clay, throw all away; Marle sand, and buy land."

Fences and Fencing.—Custom requires every person who expects to raise crops, to build fences to keep his neighbor's animals from despoiling them. We believe however the opinion is gaining with most intelligent farmers that the custom should be done away with. The expense of the fence system is enormous, and in addition it keeps out of cultivation millions of acres of good land.

It has been estimated that the farm fences of the whole Union have cost \$500,000,000, and that in the State of New York alone the zig-zag fences, so commonly built, occupy at least three hundred thousand acres of cultivated land. Incredible almost as this may appear, yet it is probably below rather than above the actual facts. R. L. Pell estimates that it costs \$250,000,000 per annum to maintain the farm fences of the United States.

We believe millions of dollars every year would be saved to the farmers of our country if every man were required to fence in his own stock; and no man obliged to fence his neighbor's stock out.

Preserving Fence-Posts—Kyanizing, &c.—Why do some rot, whilst others, apparently under the same circumstances, last twice or thrice as long? There is something in soil and climate to be considered. If the soil is wet, a post will not last as long in it as it would if dry. If in a cold climate it will last longer than in a warm one. The great se-

cret however is in the season of cutting the timber. A post cut in summer, say July or August, will rot in less than half the time of one cut in February. Then the majority of experiments reported indicate that if set with top down they will last longer than otherwise, the theory being that moisture can not ascend as readily when the order of growth is inverted.

One cause of the incalculable expense in maintaining fences is the rapid decay of those parts of timber fence posts inserted in the ground. Fences would last three times longer than they usually do could those parts that are covered in the earth be so treated as to render them as durable as those parts that are exposed above ground. A great saving would therefore be effected by any simple method of treatment to prevent rot in fence posts. This may be effected in different ways:

One method is to season well, and then coat with coal tar. Apply boiling hot. Another method is kyanizing: one pound of blue vitriol (sulphate of copper,) is taken to twenty pounds of water. Dissolve the vitriol with boiling water, and then add the remainder. The end of the post is then dropped into the solution and allowed to stand four or five days; if six inches square, six days—some say ten days; for shingles, three days will answer. If a barrel is used it must be kept moist on the outside, for instead of expanding it, as other liquids do, this shrinks it. A box in a strong frame with keys to tighten it is convenient. A strong box lined with copper, zinc, or lead is sometimes prepared for the purpose. It would corrode an iron vessel. Dr. Parker says, let oak, if dry, be in the tanks ten days, pine twenty days, beech, chestnut, &c., eight days. And he adds that one pound of the sulphate to twenty gallons of water is strong enough. The timber may be seasoned or green.

A convenient post tank is made round, of copper, two feet in diameter, four feet deep; needs no wood sides, only a thick plank bottom.

Chloride of zinc, sulphate of iron, and creosote are also used for kyanizing. The latter is preferred in England and is applied to considerable extent to railroad, bridge, building and other timber.

Boring into the post just above the ground, then filling with half a pint of salt, and plugging up, is said to be a preservative if the timber is seasoned. Charring the foot of the post has also been recommended. And much advantage has been gained by inverting the posts. But the best thing is boiling in coal tar, or to kyanize them.

Splitting Posts.—In splitting posts, commence by opening the heart at the top end of the post, and if the timber is any way passable, the split will follow the heart through the length of the stick. If it slabs

off, it will be with much less loss of timber than if splitting is commenced at the butt end. In quartering commence in the same way, or if more convenient, start the wedge in the center of the length, regarding the heart as the center division. By the above methods good chestnut timber may be split of rail length almost fine enough for even wood.

Driving Posts.—On loamy or clayey land, free from large stones, posts can be driven with great expedition and will stand firmly, the earth around them being well packed by the crowding of the post. The best time is when the ground is just free from frost and still wet and soft. Drive with a maul or iron sledge. Some use a long handled iron wrench for holding them steady, and turning when necessary.

A Cheap, Durable and Efficient Fence.—Stakes five feet in length, the lower portion steeped in one pound of blue vitriol to forty of water, driven into the ground eight inches apart, the tops brought into a straight line, and a narrow strip of board nailed upon them, one nail to each stake.

A Cheap Home-Made Gate.—In our trips through Vermont we have seen gates that were made in a manner very similar to the following direction, which we copy from the *Ohio Farmer*. According to our recollection of the Vermont style the long strips are thinner and nailed on both sides of the end pieces and brace, opposite to each other, of course, and the hinge end-piece was considerable longer than the latch end. Such light gates may be easily opened and shut, although not entirely supported by the hinges.

I take five pieces of inch boards, each ten feet long, one of these eight inches wide for the bottom strip, and each of the others four inches wide. I then take one piece four inches wide for one end upright, and one piece eight inches wide for the end piece where the hinges are to be. These end strips are four feet long, that being high enough for any gate for ordinary purposes. Now lay down your end piece, then place the eight-inch wide and ten-foot long strip for the bottom, nail it at each end to the upright with wrought nails: now take three of the four inch wide strips and lay them on parallel with the bottom one, dividing the spaces so as to leave four inches between the lower two boards, and six inches each space between the upper ones: nail as before. Now turn the gate over, and take the remaining strip, lay it at an angle from the bottom, at the hinge end, to the top, at the latch end; cut it so that it will fit in and lay close to the long strips; nail it thoroughly. Now hang with strong hinges and

you have a gate that is light, and will not sag, and just as perfect against cattle as one made by a joiner, and costing from three to five dollars. Any person can put together and hang such a gate in two hours.

Hedges.—The two leading plants for fence hedges in this country are thorns, such as are native to the locality, and Osage orange. In the South there is considerable fencing done with the Cherokee rose. The Holly is sometimes used there also, and so is the red cedar. And in the North, Norway spruce and Arbor Vitæ. Hedges all occupy a good deal of ground, and are not always reliable fences.

For ornamental hedges, the barberry, althea, shepherdia, mahonia, willow, Japan pear, (*Pyrus Japonica*), and privet, are all used.

In setting hedge plants the first step is to deeply trench the ground and unless the soil is naturally rich, work in some well-rotted manure—that composted of leaves is excellent.

Amateurs are apt to spoil their hedges by false economy in trimming. They are too anxious to increase the growth and do not cut away enough of the wood at each of the first clippings. Six or eight inches is all that you can safely increase a hedge per year. The clipping in May must be what persons unacquainted with the business would call very severe, leaving but a mere framework of stubs of branches and bringing the hedge into the desired shape.

FARMING TOOLS AND IMPLEMENTS, WAGONS, HARNESS, &C.

Care of Farm Implements.—The injury done to farm implements by getting well soaked in a heavy shower, and then rapidly dried by the heat of the sun, is not sufficiently appreciated by the majority of farmers. Paint and shelter cost far less than the loss incurred by their neglect.

Care of Tools.—Make a list of all tools, implements, carts, &c., and write it largely and plainly on a large sheet of stiff pasteboard, or on a painted board prepared for this purpose, each class in a separate column. Every day at evening, as regularly as the cows are milked and supper eaten, look over this list and see what tools have been used that day, and see that all are in their places. Once a week examine every one more particularly and see that it is in good condition, and put away bright and clean. Unless this regular review is made and all work

men made responsible for the tools they use, many will be injured at a loss far greater than all this trouble; many will ultimately be lost; and hours will be expended in hunting for those misplaced, with work hurrying, men standing idle, and teams delayed—while every one will earnestly protest that *he* “didn’t have it last.”

Keep a vessel of prepared paint with a close fitting lid, to prevent evaporation, and repaint tools rainy days as frequently as they may ever so little need it, more particularly those parts exposed to moisture as felloes of wagon and cart wheels, &c., and they will last very much longer for it. Light colors heat the least in the sun and are therefore best. Whitewashing the coarser tools frequently will be nearly or quite as beneficial as paint and much cheaper.

To Keep Plows Bright.—The moment the plow comes from the field after use, grease the bright mould board and other parts with any kind of cheap grease, which has no salt in it, or with lamp oil. The latter may be best where mice frequent.

Grindstones.—Attach a treadle to your grindstone, then you can turn it yourself while you grind knife, axe, scythe, or other implement.

Water Troughs.—A large iron kettle, such as is used for boiling potash, furnishes a convenient and lasting watering trough for stock, and is said to be cheaper in the end than any that can be made of wood, however strongly constructed.

Securing the Foot of Ladders.—Take almost any old piece of iron about a foot in length, and have one end drawn to a point, and three or four holes punched in it, and screw it firmly to the under side of one of the ladder sides, letting the sharp point extend about three inches beyond the end of the wood. Such a fixture will cost about a dime, and may save broken bones or even life.

Wagons.—The *Agriculturist* says wagon wheels ought to stand perfectly plumb, and the face of the tire should be parallel with the axles and with the plane of travel, if it is the prime object to have the load upon the wheels drawn with the least outlay of power. If the ends of the axles are bent down, the only good effect is to give the mud thrown when driving rapidly a tendency to fly away from the carriage. The wheels are then drawn at a mechanical disadvantage. Neither should the axles be tapering and hub-boxes conical, both should be perfectly cylindrical.

A writer recommends for farm wagons front wheels two feet six inches high, hind wheels three feet, felloes and tires five or six inches wide, tires thin. Advantages claimed: less liability to overturn on

side hills, greater ease of drawing on soft ground, where narrow tires cut in, and can be used on sward ground when soft in Spring.

To Keep Tires on Wheels.—A practical man says on this subject:—I ironed a wagon some years ago for my own use, and before putting on the tires, I filled the fellies with linseed oil; and the tires have worn out and were never loose. I ironed a buggy for my own use seven years ago, and the tires are as tight now as when they were put on. My method of filling the fellies with oil, is as follows: I use a long cast iron oil heater, made for the purpose; the oil is brought to a boiling heat, the wheel is placed on a stick so as to hang in the oil each felly an hour for a common sized felly. The timber should be dry, as wet timber will not take oil. Care should be taken that the oil be not made hotter than boiling heat, in order that the timber be not burnt. Timber filled with oil is not susceptible to water, and the timber is much more durable. Some blacksmiths and wagon makers may object to it as it is profitable business to tighten tires and repair wheels.

India Rubber Lubricator.—Take one gallon of rape seed or of lard oil, and heat it to about 212° Fah., then add half a pound of India-rubber cut into fine shreds and stir the whole until the rubber is dissolved. This is held to be a superior anti-friction lubricator.

Care of Harness.—Leather is seldom injured by being wet if hung up to dry, instead of being left in a mass on the floor or in a corner, where the drying is so slow as to create mold. Harness should be kept hung on wooden pegs in a clean dry room with a plank floor, so that it may be free from dampness. When soiled it should be washed with Castile soap suds. For general use harness should be fairly oiled twice a year, or if used constantly, four times a year, and for this purpose either pure neat's foot oil should be used, or the article known by the curriers as "daubing;" and this should be rubbed in while the leather is moist, but not wet. The oil should be rubbed on smartly for a sufficient length of time to insure its entrance into the leather, rather than leave it upon its immediate surface. If the leather be positively dry, this substance cannot enter, and therefore the necessity of its being moist and pliant at the time of application. Varnish should never be applied; it fills pores, and prevents the necessary access of air, causing the leather to become crisp and rigid, and in a short space of time it is rendered tender, causing it to crack, break, etc. Before applying any oily substance to the leather, all dirt should be thoroughly removed from its surface, and no other material than lamp black should ever be mixed with oil, where it is necessary to

blacken the leather. Shoe blacking is sometimes used and always with injurious effect; it frequently contains sulphuric acid, which, when brought into contact with leather, rapidly destroys it. Where the leather is very dry, as with boots and shoes, the injury from this cause is not so great.

Unbuckle and separate every strap; wash in warm soap-suds—the warmth a little exceeding that of new milk—if approaching hot, it will injure the leather. Some prefer a cold suds. Use the soap suds only long enough to remove the crust formed by dust on the previous oiling. If the application is longer continued, it will abstract too much oil from the leather. Carriage harness to look well, should be blacked, and afterwards the oil applied. After washing let the harness dry until when a strap is bent the water does not ooze out, then apply the oil.

Oil for Harness.—It has been recommended to apply first neat's foot oil, and afterwards the same with one-third castor oil, which, it is said, enables the leather to withstand the effects of rain and exposure longer than otherwise. Parts worn and used most should have a second application.

Blacking for Harness.—One ounce of extract of logwood, twelve grains of bi-chromate of potash, both powdered fine, and then two quarts of boiling rain water added and stirred until all is dissolved. To be kept in a bottle.

Another.—Take izinglass, one-fourth ounce; indigo in fine powder, one-fourth ounce; soft-soap, four ounces; glue, five ounces; logwood, four ounces; vinegar two pints; ground black, one-half ounce; beeswax, one ounce. Infuse the logwood in vinegar for some time with gentle heat, and when the color is well extracted, strain the liquid and add the other ingredients to it; boil until the glue is dissolved, then put it into stoneware or glass jars.

Another.—Melt four ounces of mutton suet with twelve ounces of beeswax, and twelve ounces of sugar candy, four ounces of soft soap dissolved in water, and two ounces of indigo finely powdered. When melted and well mixed, add half a pint of turpentine. Lay it on the harness with a sponge, and polish it off with a brush. This blacking is for working harness, which should be cleaned up and polished frequently when in constant use.

For Carriage Harness.—Take three sticks of black sealing wax, dissolve them in half pint of alcohol, and then apply with a sponge. Lac dissolved in alcohol, and colored with lampblack will answer the same purpose. This is a quick drying hard varnish, liable to crack the leather, and should therefore be put on seldom as possible.

To Protect Harness from Mice.—Mice gnaw harness for the salt contained in the perspiration exuded from the horse. To prevent the gnawing, place salt in places where the mice can get at it.

Cleaning Saddles, &c.—The whites of three eggs evaporated till the substance left resembles the common gum, dissolve in a pint of gin, and put into a common wine bottle, and fill up with water. This will give saddles and bridles a good polish and be entirely free from all stickiness.

ABOUT GRASSES, PASTURES, MEADOWS, HAY AND HAY MAKING.

Sowing Grass Seed.—We believe in the economy of sowing grass seed with every small grain crop. If a field of wheat is well harrowed in, and the ground is fresh, it may be sown with timothy without doing anything further; the first shower will cover the seed sufficiently. If the surface is not entirely smooth, it will pay to drag over it a large bush when the grass seed is sown. Some land that is pretty wet is apt to send the timothy ahead of the wheat in the spring, and injure the crop. Such land had best not be sown till spring. It is a good plan to sow upon a light snow, if there is one at the right time. When it melts, the grass seed will be sufficiently covered. If there is not a snow, or if the land is dry, the grass seed may be sown in March, and lightly harrowed or bushed in without any harm to the wheat. If wheat land is to be seeded to clover we would mix the seed with plaster, and sow it in March or April, without harrowing. The quantity of timothy or clover seed per acre varies from four to eight quarts, and plaster from a half a bushel to two bushels. In sowing grass or clover seed upon oat ground, care should be taken to sow it directly after the oats, while the ground is fresh; and it will be an advantage to roll the land or drag it with a bush. There is no method of manuring land equally cheap with sowing grass or clover seed, and turning in the sod for a hoed crop with a Michigan plow.

A farmer of fifty year's experience and observation, says he is convinced too little grass seed is sown. Formerly he sowed four quarts of clover and eight quarts of timothy seed to an acre; now never less than eight or ten quarts clover, and fourteen to eighteen quarts timothy. Since doing this he has had no failure, but generally a heavy mat of fine grass.

Solon Robinson says: The best time to sow clover is early in the spring, with small grain. If upon winter wheat, sow the clover on the last snow, at least four quarts to the acre.

Grass and Good Husbandry.—The foundation of all good husbandry upon any farm not devoted to some speciality, as cotton, sugar, rice, fruit, &c., is an abundance of grass. And this grass, either as grazing or winter keeping, must be fed on the farm to domestic animals. It cannot be sold off without endangering the fertility of the land. Every Northern farmer who would be successful must devote his energies to making his farm productive in grass.

Pasturing.—It is poor economy to feed pastures very close. They will yield much more if the grass has a fair start, than if fed down so low that it can scarcely grow. Cattle which pick a pasture down to the bone, are very apt to run largely to bone. John Johnson supposes a case founded on repeated observation, in illustration of this truth. He says: A has a little field which he thinks will keep twenty head of cattle, and puts them into it. B has a field the same size and quality, but he puts only ten into it. Now it will almost always be found that in the autumn, the ten have gained as many, often more pounds live weight, than the twenty. The ten with the first rate pasture would gain say four hundred pounds each, and it is doubtful if the twenty have gained two hundred pounds each. The ten would make extra beef, bring an extra price, while the twenty would only make third rate beef, bringing little more per pound than they were worth when turned into pasture. The ten paid twenty-five dollars each for their pasture, or perhaps more. This I have often seen.

Mossy Meadows.—Old grass fields are sometimes rendered almost worthless by a growth of moss. We see it stated that such land has been entirely renovated by sowing salt broadcast. The quantity of salt per acre may vary from five to fifteen bushels; but it is stated that in some experiments four bushels were found entirely sufficient—that the moss disappeared and the new grass that came up was highly relished by the cattle.

Hay Making.—*Don't dry your hay too much.* Hay may be dried till it is as worthless as straw. As a good coffee-maker would say, 'don't burn your coffee, but brown it;' so we say, "don't dry your hay, but cure it." Our good old mothers, who relied upon herb tea, gathered their herbs when in blossom, and *cured them in the shade.*

This is the philosophy of making good hay. Cut in the blossom, and cure in the shade. The sugar of the plant, when it is in bloom, is in the stalk ready to form the seeds. If the plant is cut earlier, the

sugar is not there ; if later, the sugar has become converted to woody matter.

Hay should be well wilted in the sun, but cured in the cock. Better to be a little too green than too dry. If, on putting it into the barn, there is danger of "heating in the mow," put on some salt. Cattle will like it none the less.

Heat, light, and dry winds, will soon take the starch and sugar, which constitute the goodness of hay, out of it ; and, with the addition of a shower, render it almost worthless. Grass cured with the least exposure to the drying winds and searching sunshine, is more nutritious than if longer exposed, however good the weather may be. If over cured, it contains more woody fibre, and less nutritive matter.

The true art of hay making, then, consists in cutting the grass when the starch and sugar are most fully developed, and before they are converted into seed and woody fibre ; and curing it up to the point when it will answer to put in the barn *without heating*, and no more.

The sooner any of the kinds of hay is brought into proper condition to go into winter quarters after being cut the better. It should be cut while it is grass, not after it has become hay ; it should be cut and cured, not cured and cut.

A writer says : A new and rather thinly seeded piece of Timothy will grow coarse stalks, which must be cut while younger than the crop of an old field which was thickly seeded, and has grown thick and fine. The field where the growth is thin we would cut as soon as it blossomed. The field where the stalks grow thick and fine we would allow to stand until the seeds in the but-end of the heads were in the milk, and a portion of them would mature so as to grow after the grass was cut. Other grasses and clover we would cut in full blossom, taking care not to dry it to death after it was cut. We would never mow while the grass was wet with dew or rain ; and if cut with a machine, we would not care how soon after it was cut it was raked into winrows with the horse-rake. If cut with a scythe, turn the swaths over as soon as the top is well wilted, and, after an hour or two of hot sun on the other side, let a man with a thin-pronged fork begin to pitch the swaths together into winrows. If not previously bleached, grass will stand a hard rain in swath or winrow without serious injury. It should always be put in good-sized well-made cocks before it is dry, and then let it sweat. It may even turn black without injury, but it is preferable not to allow it to reach that stage, for fear acetous fermentation should take place. No matter how green the grass or hay of the cock looks, or how much it smokes from the sweating process when you

pitch it on the wagon; if the air is hot and windy it will dry out so as to keep perfectly in the mow or stack by the time you have pitched and carted and pitched again, and then again in mowing it away. Grass cut at noon may be cocked at four o'clock, and hauled the next morning, and make better hay than it would if cut in the morning and afterward spread, and stirred, and raked, and pitched about, and finally cocked in the afternoon, and the cocks opened and shook up again the next afternoon, because they felt a little warm inside, and, finally, after getting as dry as tinder and puffy as feathers, hauled away to the barn. In our opinion, there is a foolish fashion of cutting grass "with the dew on," and an unnecessary labor in curing it, and an altogether causeless fear of putting hay in the barn too green. It should be put away in such a condition that it will be green in color when fed out in winter. Take a handful of grass and hang it up in a dry, dark room until cured, and see if you don't think such hay of more value than your sun-dried, colorless stuff.

Another says: The best time for cutting clover is when it comes first into bloom—that after being cut, it should remain five hours in the swath, then be thrown into cocks, and thus cured.

I lay down as a principle, says Mechi, that good hay should be green. If the cut grass were immediately dessicated or dried, it would be green.

Preservation of Hay.—Gen. Thompson, of New Bedford, Mass., cut grass about eleven o'clock in the forenoon of a day in July. It was *immediately* packed closely in a cask, the head of which was at once put in, its hoops driven, and the cask rolled into a shed. There it remained untouched until January, when it was opened, and its contents were as sweet as the day when they were first packed. There was all the freshness, greenness and aroma of new-mown hay—not a suspicion of mustiness nor a sign of decay. It was bright, flexible and juicy. It is suggested that grass cut as this was, might be screwed into bundles in the field, and thus be equally well preserved. There are hay-presses which accomplish the object very thoroughly.

Leading Products of Different States.—From the census returns of 1860, it appears that the state of Illinois produced the largest quantity of wheat and Indian corn of any state in the Union; Pennsylvania the most rye and buckwheat; New York the most oats, potatoes, hay, butter and cheese; Ohio the most wool and wine; Virginia the most tobacco, and Kentucky the next largest quantity; Mississippi the largest amount of cotton, and Alabama the next; South Carolina the most rice, and Georgia the next largest quantity; Louisiana the most sugar and molasses.

CEREALS AND SEEDS.

Seeds.—It may be laid down as a universal rule, correct in theory, though not always appreciable by the senses, that seed *never* produces its like,—but that every plant produced from seed is a new variety.

Method of Preserving Seeds Pure.—Whoever wishes to keep a squash, or cucumber, or melon true to that quality which belongs to its vine, must protect its blossoms from the contact of bees and bugs for one day. Whoever has a favorite peach, whether itself grown on a budded stock or not, can raise the same in successive generations by securing a single blossom from all admixtures with other trees for three days—one before and two after its opening—himself attending, if necessary, to the fertilization from its own stamens. In the case of vines, place small boxes covered with gauze or fine millinet over a few of the blossoms a day or two previous to their opening, keeping them there till the blossoms shrivel.

It has been frequently stated that if the largest pip in an apple be sown, the fruit will be similar to that of the parent tree without grafting.

Testing Seeds.—All doubtful field and garden seeds should be proved before sowing. Count a portion of seed and plant it in a box or pot of fine soil, kept damp in a warm room. The number of plants which appear will show the proportion of good seed. Or place the seeds between the folds of a damp cloth, and put this between two plates to prevent evaporation. Or tie them in a cloth and bury them in the soil of a hot-bed.—*Editor American Agriculturist.*

The vitality of seeds may be tested by putting into a tin pan a thin green sod, grass uppermost. On this place a quantity of sod with the grass side down. Moisten the whole with hot water, keep near a stove, and in a short time the seeds will show whether they may be depended on or not.

Vitality of Seeds.—Seeds of different kinds, collected and preserved with equal care, will vary in the length of time they retain their powers of germination. Some seem to be good after an indefinite period, while others are not to be depended upon after they are a year old. The seeds of some trees will not germinate at all if once allowed to dry, and others will only appear the second year after planting. Works upon horticulture are generally deficient in information upon the raising of seeds and the length of time they may be safely kept. While it is safest to keep them at a uniform temperature just above

freezing, there are many which will bear great extremes of heat and cold. Plants have been raised from seeds taken from raspberry jam which must have been exposed to a heat of 220 degrees. When buried in the earth, below the reach of those influences which induce germination, there seems to be no limit to the vitality of some seeds. Among plants commonly cultivated, the seeds of carrots, onions, parsneps, and salsify, are not to be relied upon when over a year old. Beets, spinach, lettuce, celery and parsley, will keep two or three years. Radishes, cabbages and turnips, four or five years. Melons and cucumbers may be kept for ten or more years; old seeds of these are preferred by some gardeners, as the vines are said to be more prolific and less luxuriant than those from fresh ones. Good seeds being heavier than water will generally sink in it, but this is not applicable to those with a hairy or spongy seed-coat; such seeds will float even when sound. The only sure test is to try and sprout them in boxes or pots of earth. If they do not germinate there, they should be rejected.

A very good authority gives the following: Parsneps and rhubarb, two years; beans and peas, two to three years; carrot, lettuce, mustard, nasturtions, and parsley, three to four years; cabbage, egg plant, pepper, radish, spinach, salsify, turnip, tomato, four to five years; asparagus, brocoli, cauliflower, celery, and okra, five to six years; beets, corn and all the cerials, cucumber, gourd, melon, pumpkins, squash, six to ten years and upwards. This applies to the best seeds, well ripened, and kept with proper care. If kept dry and cool in air-tight vessels, as all garden seeds should be, possibly they may be made to preserve their vitality very much longer.

In addition to the old story of the vegetation of wheat found in an Egyptian mummy, the *New Hampshire Journal of Agriculture*, in reply to the inquiry of a correspondent as to the length of time that seeds retain their vitality, quotes the following statement from an English paper:

James Binks, in the *North British Agriculturist*, stated that he had recently cleared off some old Roman encampments on his farm near Alnwick, a farm which he had lived upon for sixty-four years, and forthwith among the barley there sown arose some seventy-four varieties of oats never seen in that region before. As no oats had been sown, he supposed the place to have been an old cavalry camp, and that the oats, which were ripened under other skies, had lain covered with debris for fifteen hundred years, and now being exposed to the

action of sun and air, they germinated as readily as though but recently sown.

Time Required for Seeds to Germinate.—Wheat, one day; beans, mustard, spinach, three days; lettuce, four; melon, cucumber, cress, beets, radishes, five; barley, seven; purslane, nine; cabbage, ten; parsley, forty; peach, chestnut, almond, one year; roses, filberts, hawthorn, two years. Soil, degree of moisture, and temperature may cause some variations.

Saving Seeds.—If farmers and gardeners would but spend a small fraction of the time literally thrown away every year, in producing and saving their home grown seeds, instead of depending as is too widely the practice upon seedsmen and strangers, they would be greatly the gainers in improved stock.

Begin to save garden seeds in August. Tie a red cloth on the earliest ears of sweet corn, on the most forward tomatoes, cucumbers, squashes, and everything else to be saved for seed—and save none but the earliest. By this means earlier vegetables and fruit will be saved next year. But by saving the seed of those that ripen last, the fruit will mature later and later every season, until after a few years it will not ripen at all.

It is said that cabbage seed gathered from the middle flower stem produces plants which will be fit for use a fortnight earlier than those from the seed of the lateral flower stems.

The subject of saving seed is a very important one to the farmer and gardener, and to every one that works a patch of ground, therefore we add some excellent advice from Hibberd:

He says, make it a rule to clear off every crop as soon as it ceases to be useful; and if your ground is not too large for you, never grow a single ounce of seed, except of any particular thing of which you can not make sure of a supply. When you do grow seed, do not leave the worst plants for that purpose, but the very best you have; and give those as much extra culture as they will bear, for poor seed is not worth gathering, and there are few things that can not be improved by bestowing a little extra labor in growing and seeding. Such things as peas and beans, if intended for seed, should not be gathered from at all, because the first pods are the best; if they are plucked, and a second supply depended upon, the seed will be inferior. In saving seed of potatoes, choose the best shaped, hardest tubers, that have no second growth on them: let them be thoroughly ripe before taking up. Choose those that are about the size of hen's eggs, and let them lie on a piece of dry ground in the fall sun for a week; then lay them in

shallow baskets and stow them away, where they will be safe from frost, damp, and artificial heat, so that a free circulation and some amount of light can reach them. By February they will be green and hard, and little sprouts will be breaking: they are just in trim for planting. Of all other things, choose the very best for seed; for early things, choose those that are the earliest in the patch. Of things that are prized for bulk and weight, select the finest for size and general perfection; gather all seeds just before they are dead ripe, and dry them on a piece of cloth or sacking, so that if any shell out they may not be lost.

How to have good Seeds.—There is a town Agricultural Society in Andover, Mass., which has been of great value, and tended more than anything else to beautify the town. One person belonging to the society plants beets, another carrots, others some other vegetables, for the purpose of supplying the members of the society with fresh and surely-germinating seed.

To Clean Tomato and Cucumber Seeds.—A correspondent of the *American Agriculturist* says: Put the seeds and pulp just as they come from the vegetable into any earthen-ware dish, and set them in a cool place for a week or ten days, when a thick mould will appear on top and a thin watery substance beneath the mould. Then pour water into the vessel, stir up the contents, and the mould and other impurities can be poured off, and the seeds will be found perfectly clean and free from pulp.

Saving Seed Corn.—Remember, that every new plant raised from grain, is more or less a *new variety*—and to have it constantly improving save the very best. In husking corn, take such ears as are finest, and from the most prolific stalks. Ten years of constant care like this, will, step by step, effect a great improvement. Potatoes, not being raised from *seed*, but only by a multiplication of the same plant, will not thus improve.

The most successful and interesting demonstration of the practicability of improving Indian corn, says the *Rural Register*, is that made by Thomas Baden, Maryland, who, by carefully selecting the best seed in his field for a long series of years, having special reference to those stalks which produced the most ears, ultimately obtained a variety which yields four, five, six, and even as high as eight and ten ears to the single stalk.

The plan he adopted was this: When the corn was husked, he made a re-selection, taking only that which was perfectly sound and fully ripe. In the spring, before shelling the corn, he examined it again,

throwing out any that had assumed a bad appearance during the winter. In shelling the corn, he threw aside the grains at both large and small ends. He has carefully followed this mode of selecting seed corn, for twenty-five or thirty years, and still (if living,) continues to do so. At present he does not pretend to lay up any seed without it comes from stalks which bear four, five and six ears.

In addition to the number of ears, and of course the great increase of the quantity unshelled, it yields much more than common corn when shelled; ten bushels of ears will make more than six bushels when shelled. Ordinary corn will only shell five bushels to the barrel.

Mr. Baden plants his corn five feet each way, leaving two stalks to the hill, which is equivalent to three and a half feet each way with one stalk to the hill. This makes more hills to the acre than four by four, or five by three, the old Virginia mode of planting.

A correspondent of the *Boston Cultivator* gives the following hints in regard to selecting seed corn:

1. Pick the ears that set nearest to the ground.
2. Those ears that have a short foot stalk.
3. From stalks having the most ears. Generally but one ear on a stalk is proper for seed, and that usually the second ear. If the first ear is as good, take that.
4. Never take from a stalk having but one ear, if stalks can be found having two or more ears.
5. Always take ears that are filled out full to the end, and that run beyond the husk, if such can be had.
6. Lay up four or five times as much as will probably be wanted.
7. When you come to plant, before shelling, break every ear and see if the pith of the cob is dried up and hollow, for if it is not, the corn is not fully ripe. Then shell off the butt and tip till you come to the long grains.

If farmers will follow this course yearly, the crop may be greatly increased. Great crops can never be raised from stalks having but one ear. The carelessness of farmers in selecting seed corn is one great cause why corn crops are generally of so little profit. The general practice of farmers in selecting seed corn, is to take the best and fairest ears in the pile, without knowing if there were one or more ears on a stalk, and most likely there was but one.

Testing Seed Corn.—A correspondent of the *Cincinnati Gazette* writes: The following mode will be found simple, practical, and certain, and can be applied to any extent desired. Put the shelled corn in a vessel or vessels of such dimensions as are required for the quantity to be tested. Pour water over it of about the temperature of milk from the cow, until it is fully covered, adding to the water, from time to time, if the absorption and swelling of the corn should raise it above the

surface. Set it in a moderately warm place and let it remain twenty-four hours. Then pour the water off, cover the corn with some thick cloth which must be kept wet, and let it stand in some warm place, until it sprouts. This will take place in from thirty-six to forty-eight hours, usually, if the corn is good.

I prepare all my corn for planting in this manner, though I know the seed to be good. I plant sometimes with the sprout half an inch long. The result is that it brings the plant forward a week or more earlier than planting dry. This advantage in the fall is something very important. The damaged corn from my field last year did not exceed five per cent.

Average Yield of Corn.—From statistics gathered by the Secretary of the Iowa Agricultural College, it appears that the average yield of corn in Iowa is seventy bushels per acre. The average period of growth is four and a half months—the gourd-seed variety requiring five months, and the flint variety four months.

Average Yield of Grain in England.—The *Mark Lane Express* gives in detail the average yield of wheat, barley, oats, beans and peas in thirty-eight counties of England, from which we find that the grand average yield, in bushels per acre, in all those counties, is as follows: wheat, 29 bushels; barley, $37\frac{3}{4}$ bushels; Oats, $46\frac{1}{2}$ bushels; beans, $32\frac{1}{2}$ bushels; peas, 30 bushels.

Farmers will do well to compare it with the average yields of the same articles in this country. The lowest average of wheat in any county, $22\frac{1}{4}$ bushels per acre in Devonshire, and the highest $34\frac{1}{4}$ bushels in Lancashire.

The lowest average of barley is 29 bushels per acre, in Shropshire, and the highest average of barley is 44 bushels in Northampton.

The lowest average of oats is $34\frac{3}{4}$ bushels per acre, in Westmorland, and the highest $59\frac{1}{2}$ bushels, in Cambridgeshire.

Marvels of the Wheat Plant.—One of the most marvelous faculties of the wheat plant is that of sending up a multitude of stalks from a single grain, known as *tillering*. It is the secret of its great productiveness. Many experiments have been made to ascertain the limit of this faculty, and the results have been truly wonderful. An English gentleman sowed a few grains of common red wheat on the 2d of June, one of the plants from which had tillered so much by the 8th of August that he divided it into eighteen others, all of which were planted separately. In a few weeks so many of these had again multiplied their stalks, that he had set out sixty-seven altogether to go through the winter. With the spring growth all these began tillering, so that in

March and April a new division was made, and the number of plants increased to five hundred. It was believed that another division might have been made, and that it would have increased the number of two thousand. The five hundred grew most vigorously, exceeding plants as ordinarily cultivated. When harvested, a single plant yielded over one hundred ears, and the whole number of ears produced was 21,109, or more than forty to each divided plant, and the grain measured three and three-fourth pecks, weighing forty-seven and a half pounds. The grains were estimated as numbering 576,840. All this was the product of a single grain.

Quantity of Seed Wheat to the Acre.—When sown broadcast two bushels or two bushels and a half seems to be the general quantity; when sown in drills about a half as much. Charles Brackett of Fulton Co., Ind., gives some experience in planting in hills, as follows: I planted last fall five rows of wheat, with spaces between different rows of three feet, two feet, and eighteen inches; this was kept clean with the hoe, and the product is as follows: Average number of stalks from each seed, nearly thirty-two; number of grains to the head, seventy-two to one hundred.

Thus if we count less than really grew, say thirty stalks from each grain of seed, and seventy-two the fewest number of grains found in any one head, we get at the rate of over two thousand fold, and from that to three thousand two hundred, counting the highest yield. From the year 1845 to 1855, the average of wheat in this and parts of the adjoining counties, according to my record, was less than eight bushels to the acre, the very best being thirty-three bushels. Indian corn sown broad-cast at the rate of from one to two bushels, will yield a larger average, but when planted in our usual way, produces from thirty to one hundred bushels per acre.

My object in writing this is to bring the facts to the notice of agriculturists, and to induce as many as possible to try the experiment on as much land as they are willing to experiment with. I hope those wishing to test the matter will get the wheat in before the last of August. I lay off the ground two feet each way, and put four grains to each hill, and keep clean till next harvest. It must be put in early—no matter how soon after harvest. This will give thirty stalks to the square foot, and 104,089,600 grains to the acre; which, allowing 898,560 grains to the bushel, gives nearly one hundred and sixteen bushels to the acre. This estimate is a correct one, based upon actual facts, and, although it looks like a wild calculation, will, I think, prove so nearly correct as to help reform our present slovenly and extrava-

gant mode of wheat culture. The quantity of seed required to plant an acre, is only a trifle over five pounds if put in as above described. Where my wheat stood in rows, three feet apart, when ripe the heads appeared nearly as thick together as in a field of broad-cast wheat, and, instead of being from two to three inches in length, were from six to seven.

Selecting and Mixing Seed Wheat.—If as much pains were taken in selecting seed wheat as seed corn probably no less advantages would be gained. Repeated screening will select the finest grain. In picking seed wheat as a preventive of smut, if care is used to scatter but little at a time in the pickle, the imperfect and light grains may be skimmed off. Seed wheat may be greatly improved from year to year by taking pains to cut it from the best portions of the field. Persons who use but little seed may go through the field and select the choicest heads. By selecting the best sheaves and whipping them over a barrel without unbinding them the best heads are shelled. And one farmer took his seed wheat on the barn floor, and threw it across the barn, a handful at a time, saving only the heaviest kernels, which went the farthest.

Samuel Heinstern, of Chester Co., Pa., says that he practised mixing seed wheat sixteen years with the best results, and recommends that each farmer should every year exchange with another a part of his seed and mix the two or more sorts together. The advantage of this course has been proved by others. A change of seed is by some thought more important than rotation of crops.

To Prevent Smut in Wheat.—Pickle it in a strong brine, to which may or may not be added sulphate of copper, or sulphate of iron, or simply urine saturated with salt. The practice of sprinkling dry slacked lime with it in the bins when stored also prevents smut and the injury by weevil. One farmer recommends keeping the seed over to the second year for sowing; another recommends mixing a peck of fresh slacked lime with ten bushels of seed wheat and letting it stand a few days before sowing. The lime can be separated from the grain by running it through the fanning mill.

How to Treat Germinating Wheat.—Prof. Nickels has directed the attention of the Agricultural Society of Sancy, France, to a very simple process of treating germinating wheat, so as to make it fit for use in bread. On account of the heavy rains in many parts of France last autumn, the harvest was gathered in a damp state, and much of the wheat germinated, so as to be unfit for use. This attracted the serious attention of M. Nickels, who immediately made some experiments,

with a view to find out some cheap and efficient mode of removing it; and he succeeded in obtaining very satisfactory results, simply by the use of salt. The two principal ingredients of wheat are starch and gluten, and both of which are insoluble after germination. Thus the starch becomes dextrine; the gluten loses the elasticity necessary to make good dough; and the bread made from it is heavy, indigestible and unwholesome. By the addition of salt, however, the gluten is restored to its natural taste of insolubility, and becomes fit for making good bread. M. Nickels found that a mixture of about four ounces of salt and thirteen pounds of flour from germinated wheat, yielded about seventeen pounds of excellent bread. About twenty-one pounds of salt, worth 1 3 4d., will be sufficient for one hundred pounds of flour, producing one hundred and forty-three pounds of bread.

Hulled Wheat.—A French writer states that hulled wheat makes ten per cent. more flour and of a better quality than the unhulled grain, also that the former has been found to keep much better, as the weavils and animalculæ which destroy grain deposit their eggs in the hull.

Protection from Dust in Threshing.—Tie a thin piece of slightly moistened sponge of good quality over the mouth and nostrils. It will collect all the small particles of dust that would otherwise settle on the lungs, and does not at all interfere with breathing. When it becomes filled with dirt and dust, wash it out in water and apply to the face as before.

Buckwheat as an Exterminator.—"Buckwheat when sown on rich ground, will kill grass effectually. It must be sown as soon as the grass is plowed. In such case, a few crops will even exterminate quack. Buckwheat seems to be a poison to other plants; and it is even known to destroy insects. It does this probably by destroying the roots of the grasses and herbs on which they feed. No insect ever touches buckwheat in the ground."

When to Sow Oats.—As a general rule, there is no time to sow oats so good as just as soon as the frost is out of the ground so that plowing can be done; and if the land is not naturally dry, or has been underdrained, so as to plow very early in the spring, it should be plowed in the fall with a Michigan plow, and then it can be harrowed or scarified with a cultivator, and sown and lightly dragged. And it is even better to sow without any stirring of the soil previously, if it is very soft, rather than to "wait for a good time." The year 1858 will be long remembered as one of unusual wetness in the spring, and one of failure of the oat crop. Yet, in every instance where the seed

was put into the ground early, where it had been previously prepared, or where it had been underdrained, the crop was good both in straw and berry.

CULTIVATING VEGETABLES.

The Most Profitable Variety of Potato.—By experiments made in 1862, with the following kinds, the rate per acre of the yield is said to have been as follows:

Prince Albert, 86 bushels 6 quarts; Jersey Mercer, 91 bushels 18 quarts; Nova Scotia, 163 bushels 20 quarts; Peach Blōw, 114 bushels 3 quarts; Garner Chili, 120 bushels 3 quarts; Coppermine, 199 bushels 2 quarts; Rusty Coat, 216 bushels 6 quarts; Cusco, 240 bushels, 7 quarts.

Mr. Carpenter said at a recent meeting of the Farmer's Club of the American Institute, New York, he believed that the Cusco-white, with good culture, would yield three hundred bushels to the acre. It brings the same price in the New York market as the Mercer.

The Best Early Potato.—The same gentleman says that Early Cottage is far the best and most profitable early potato.

How to Have Early Potatoes.—Bring the seed potatoes in a barrel into a warm room about the first of March. The eyes start rapidly, and in about two or three weeks they are ready to plant. Or start the potatoes in the hot bed about the middle of March, cutting the tubers in halves and placing them flat side down, covered with two inches of mould, and separate carefully to transplant when up about two inches. Or put each piece of potato in a small piece of turf exposed to the sunshine, where they can be watered, and when in danger of freezing covered with straw, the potato and turf set in the ground at the proper time. On a small scale for family use this is an excellent method. Always have early varieties, and grow them in warm ground, well manured with horse manure.

What Sized Potatoes are Best to Plant.—An English experimenter, after deducting the weight of the seed, found a gain of 5,069 pounds per acre in using four ounce in preference to two ounce sets, and in using eight ounce sets the gain over the two ounce was 6,942 pounds per acre. He planted in rows two feet apart, and one foot in the row. We believe the farmers near New York City who raise potatoes largely for the city market use their large potatoes for seed almost uniform-

y, cutting each tuber into four pieces, and allowing only four stalks to grow in a place. They raise potatoes of very uniform size, and hardly any small ones.

Sort out the Small Potatoes.—At a late meeting of the New York Farmers' Club, Solon Robinson said that farmers would save one-fourth of their price by separating the large from the small potatoes before sending them to market. When mixed the small potatoes only fill up the interstices and lessen the value of the whole, while when separated, the large ones will bring a good price and the small ones sell for something for use by bakers and otherwise. Or, if desired, the small ones could be kept at home, and are as good for family use, in most cases, as any.

Potatoes Exposed to the Sun when Growing are Poison.—The shoots of potatoes exposed to light contain solanum—a powerful poison. The tubers of potatoes which are covered with earth from the light never contain this poison, but if exposed when growing they become green on the skin, which is a sign that this poison has become developed in them. On no account should green potatoes be given to persons or animals.

Remedies for Potato Rot.—Prof. Mapes states that he had a field, half of which was under-drained, and he planted the whole to potatoes. On the under-drained portion none of the potatoes rotted, while on the other half they all rotted.

A farmer sixty-three years old says he never had potatoes rot in the ground. He plants in the latter part of April or fore part of May. When six inches high he dresses and plasters. When the sets show for blossoming, he takes two parts plaster and one part fine salt, mixes well together, puts a large spoonful to each hill as nearly in the center as possible. Just as soon as the potatoes are ripe, he takes them out of the hill, puts them in the cellar perfectly dry, and keeps them dry and cool.

A paper has been addressed to the Agricultural Society of Chalons, in which it is stated that potatoes may be safely grown, free from disease, by merely planting them in June instead of April. The writer, who has proved his theory by several years of successful experiment, is of opinion that by planting the roots in April they become corrupted by the alternate frost and heat.

A German agriculturist says he saves his potatoes from the potato disease by washing them in chlorine water before planting, drying them in the sun.

A correspondent of the Boston *Cultivator* considers it an important

item in the cultivation of potatoes to pick off the blossoms as soon as they appear, for the reason, as he says, that it hurts a potato as much to go to seed as it does a radish or any other root crop.

Potatoes should never be used for seed in the soil in which they grew. The same seed continued in the same soil would deteriorate. Farmers will always do better to dispose of their whole crop, and buy new seed each year.

A farmer, who thinks the depredations of a little black bug causes the potato rot, says he prevents it quite effectually by dusting the tops frequently, and always immediately after a rain, with ashes. He places his potatoes in shallow bins in his cellar, a foot from the ground, and is careful to assort out any affected ones a few weeks after storing.

Uselessness of Earthing up Potatoes.—By drawing up the earth over the potato in sloping ridges, it is deprived of its due supply of moisture by rains, for when they fall the water is cast into the ditches. Further, in regard to the idea that by this nursing up the number of tubers is increased, the effect is quite the reverse; for experience proves that a potato placed an inch only under the surface of the earth will produce more tubers than one planted at the depth of a foot.

Tanbark for Potatoes.—A gardener at Troyes, "having observed that everybody living in the quarter of the town occupied by tanners escaped the cholera, determined to try the virtue of tan when planting potatoes. For this purpose he placed a shovelful of tan in the trench under the seed in a part of the field, and planted the remainder in the ordinary way. On digging out the potatoes he found that those which were planted near the tan were perfectly sound, while the others were diseased. He found, further, that potatoes were preserved in winter by spreading tan on the floor of the storehouse."

Sweet Potato Culture.—A gentleman in Delaware contributes the following:

Sweet potatoes are raised very extensively along the eastern shore of the Delaware, on the light sandy soil that extends thirty miles southward from Camden. The principal markets are Philadelphia, New York, Boston, Wilmington, Delaware, and Baltimore. The varieties cultivated are Nansemonds, Early Yorks and Bermudas. The first named grow large, long, and rougher than the second, yields abundantly, but does not suit the Philadelphia and Wilmington markets as well as the Early Yorks, which are marketable earlier and grow more smoothly and compactly, and are the most generally cultivated.

The third, a new variety, received from Bermuda, of a light red color, coarse and rough, is inferior to the first two for the table, but attains a marketable size earlier than they do, and produces a much larger yield.

Sweet potato seed is all sprouted in hot beds, which is made about the middle of April, nearly as follows: In a sheltered piece of ground with a southeasterly exposure, dig the ditch for the bed one foot deep by five wide, and about two and a half feet long, for each basketful (five-eighths of a bushel) of seed, stake-boards at the ends and sides to make the whole depth about two feet; put coarse hay in the bottom, so that when well trodden it will be one-third full. If the hay is dry, it must be wet sufficiently to make it heat. Next, put on good horse-stable manure, that has not fermented nor been water-soaked; have the manure thrown along the side of the bed, shake it loosely on the hay, (walking backward, so as not to pack it,) to the depth of six inches or more. Then take a broad board, lay it on the manure, and walk gently on it to give it uniform surface. Upon this put a layer of fine sandy soil, about four inches in depth, on which the potatoes are laid, so as not to touch each other, small ones being generally used. Cover the potatoes with the same kind of earth that was put on the manure, so deep that when your fore-finger is thrust through it upon the potato, the earth will come to the middle joint. Cover the bed with coarse hay two or three feet deep to prevent the heat from escaping, and the rain from wetting it. Take off the hay in the heat of the day, from nine to three o'clock, if it is warm weather. When the bed begins to heat, it must be examined by running the hand into it—a moderate warmth is all that is necessary—more than that will be injurious, and must be counteracted by leaving off the cover at night, or by applying cold water. When the plants appear, and afterward, they must be watered daily, unless the bed should be too cold to allow it. Warm water from a pond or ditch is best. A basket of seed, if small, is expected to produce at least 1,500 plants; sometimes more than double that amount is obtained. Large seed don't yield so much. Light sandy soil, free from indecomposed vegetable matter, is generally selected for the crop. Plow as for oats, harrow thoroughly, mark out thirty-three inches each way for the hills.

The manure for sweet potatoes must be well rotted by composting, or otherwise. Marle mixed with it is an advantage. From eight to thirteen two-horse loads, according to quality and abundance, are used per acre for composting. When rotted, a one-horse cart-load will make from 250 to 400 hills. The hills should be made, or the

manure covered as soon as it is put in the hills; from four to six good hoes full of earth are sufficient to make a hill. The plants are taken from the bed and put in the hills about the middle of May, and so onward to the first of July. As often as one growth of plants are pulled another takes its place. Care must be taken, when pulling the plants to hold the potato firmly in the bed by pressing on it with the left hand. In setting out plants, a boy drops a plant on each hill, taking two rows at once; a man follows, and taking the plant in his left hand, runs three fingers of his right hand through the top of the hill into the manure; as he withdraws them he quickly thrusts in the root of the plant to the bottom of the hole, and then with the thumb and finger of each hand, firmly presses the earth around the plant. Plants are best set out when the ground is not too wet and cold—much better before a rain than after. The crop is tended with small cultivators and hand hoes. One hand is allowed to attend 40,000 plants, or about eight acres. The crop is generally dug with large hoes made expressly for that use. When stored for spring, they are carefully placed in baskets in the field, and then emptied into boxes or barrels, and sometimes covered with dry sand, or leaves, or cut straw, but often without anything to keep the air from them but the lid of the box, which, if tight, is mostly sufficient; but the room must be kept dry and warm. If the crop brings fifty dollars per acre, it is considered to pay expenses. All over that is profit; and 250 baskets per acre is a large yield.

Setting Sweet Potato Plants.—A. W. Todd, of Louisville, Ky., gives these instructions:

Prepare ground immediately before planting, as freshly prepared ground is more suitable to receive the plants. Having got both plants and ground all ready, no matter how dry the weather, commence about the middle of the afternoon, having tubs or barrels of water conveniently situated, and use about a teacupful of water to each plant. The ground being loose, the four fingers of the right hand are passed down about their length into the earth, and the dirt pulled up so as to make a hole large enough for a cup of water. With your left hand carefully set your plant down as it should stand. Now let some person pour on the cup of water, which will cause the fibrous roots to swim and straighten out in their natural position. Now quickly let the dirt in your right hand be conducted around your plant in as loose a manner as possible, leaving the top of the plant properly out of the ground. No packing is desirable. By this method we never have to wait for a suitable season; the plants commence growing right along

and live and do better than planted in any other way unless it is a very favorable season.

Cultivation of Cabbage.—This valuable esculent may be brought to table in good condition nearly the whole of the year round, by planting from a series of monthly sowings, extending from early in March to the end of August. The largest sowing, however, requires to be made on or about the 12th of July, from which the spring supply is produced; those which are sown previous to that date form heads the same year, and produce a succession of nice young cabbages far on into the winter. The August sowing is to furnish plants to be pricked into a nursery bed, and planted in a bed in March, to succeed the autumn planted bed, which should be rooted up as soon as the produce is cut. In this manner, by making small beds at proper intervals, removing the old beds as soon as the first produce is cut, and cropping the ground with a different vegetable, the fertility of the ground is retained. The whole family are terrible suckers of the soil, and hence arises the necessity for affording them a liberal supply of manure strength.

Cabbages like a strong soil, which, when prepared for planting, should be well manured and deeply trenched; and to ensure a free growth and consequent succulent tender quality during the hot months, they should be roughly hoed up, and liberal supplies of liquid manures poured over them; in the cooler months of the year this will not be necessary, provided there is plenty of stimulation from beneath. Very light and sandy soil will require even more attention to be paid to the manuring part of the question than strong soil, and will not produce tender fine-flavored cabbages without a good supply, and many applications in a liquid state.

Salt for Cabbages.—A correspondent of the *Farmer and Gardener* tested the value of salt on cabbages, and with satisfactory results: After planting them out he watered them some two or three times a week with salt water, containing about fifteen grains of salt to the pint. The cabbages grew beautifully, and headed up very finely; while those which had no salt water given them, produced loose open heads, which were unfit for any other purpose than boiling. Rain water was given at the same time and in the same quantities as the salt water. He does not know how strong a solution of salt the cabbages would bear without injury, but is fully satisfied that a solution no stronger than that he used is decidedly beneficial.

Storing Cabbage.—Levi Bartlett of New Hampshire, who is good authority for what he recommends, says the best way to store cabbage for family use in winter is to cut off the heads and strip off the

loose leaves, and pack the heads in damp moss, such as is generally used by nurserymen. Barrels or boxes may be used, and the heads come out clean, fresh and sound during winter and keep till spring. One advantage of the method is that less storage room is required in the cellar, and there are no waste leaves and stalks to decay. He says: Last fall I again packed boxes and barrels of them in moss. These were stored in the barn, and frozen slightly. They were then covered with straw, and remained partially frozen through the winter into April, and there was no rotting or shriveling, but they were always sound and fresh. By placing a head in a bucket of water for an hour or two previous to putting it into the dinner-pot, the frost would be removed, and the cabbage would be as fresh as when taken from the field the preceding November. Where moss cannot be readily obtained, I think clean straw, cut in a hay-cutter, and thoroughly wetted with water, might be successfully used as a substitute for the moss in packing. Although the moss and cabbages were frozen, there was no difficulty in taking out the heads at all times, when needed.

Plant a Squash Vine.—Mrs. Susan Shepardson writes from Springfield, Lagrange county, Indiana, that she raised a squash vine the past season that measured six hundred and seventy-three feet long, and produced nineteen squashes that weighed nine hundred and twenty-six pounds, the largest of which measured five feet seven inches around, and weighed one hundred and sixteen pounds. She says: Now if any of the young people can beat an old woman, sixty-two years old, raising squashes, they may have some of the seeds of the big one by sending for them.

We commend such a producer of food as this "old woman" to the particular attention of "the young people," who ought to produce what they eat.

How to have Early Melons.—Place four bricks about melons flatwise, and a piece of glass laid over them will hasten the vines and produce early fruit. As the vines grow, turn the bricks up edgewise. It will also protect them from the frost.

The Cultivation of Lima Beans.—The most successful growers of Lima beans use poles only five feet high, and such are not costly nor liable to blow over. As soon as the runners reach the top, pinch them off, and they will throw out laterals, which bear the fruit, and a pint to the pole gives a very profitable crop. One peculiarity of this kind of beans is, that it bears high manuring, and Peruvian guano is the best. The beans should be started in a hot-bed, or in boxes in the house. Cut sods into squares of two inches, and insert one bean in

each, being careful to place the eye down. When they vegetate, plant the sods, four to each hill, which may be made in well plowed ground to good advantage by boring with a post-hole auger two feet deep and working it back and forth so that the ground will be very mellow to that depth, right under the roots. Set the pole before planting the beans.

Pinching off at six feet high instead of permitting the vines to run around poles fifteen feet high is excellent practice. It causes the vine to grow to a much larger size, throwing out side shoots with a larger crop of fine fruit, and to perfect the beans before frost, instead of continuing to bear indefinitely, and to perfect but few. This is an excellent crop when so managed and always profitable. It only requires full fertilization and thorough disintegration of the soil to raise a pint or more of Lima beans per pole, and with such a crop sold at six dollars per bushel in the dry state, the yield will equal four hundred dollars or more per acre in value.

A Brooklyn suburban resident recommends trellises instead of poles for all climbing beans. He thinks it absurd to grow pole beans in hills, as the roots are crowded and the vines twisted up together in their attempts to twine around the pole. If planted by a trellis with a wire for each vine they are spread out to the sunshine and will produce twice as much as in hills. The best plan is to have a permanent frame for Lima or other running beans. Set strong posts twelve feet apart, with a slat or wire on top. The posts according to the Iowa recommendation should not be over five feet high. A slat or wire is also fastened upon the posts about a foot above the ground. The beans are planted in a drill under this wire, and when ready to run are led along twine to the upper wire. Such a trellis may be used for a blind in summer, or as an ornamental screen of any part of the garden. Another good form of trellis is made portable, in lengths of eight or ten feet. It is formed by nailing strips of lath together, or it may be made of wire or in any form to suit the taste. These frames are set up two or three feet apart at the bottom, leaning together at the top and fastened. The vines are planted upon the outside of each frame. Beans may be thus grown to be both ornamental and useful. A garden, or a part of it filled in the ordinary way with beans on poles, is anything but ornamental. The great secret, however, of growing Lima beans, is to keep them pruned.

It is important not to plant Lima beans too deep, also to set them carefully by hand right side up.

To Cure White Beans.—Take stakes about five feet long, with bran-

ches left on them long enough to prevent the branches settling down into a compact mass, and go through the field and set as close together as your present experience will tell you is necessary. Place any old trash, such as coarse weeds, sticks, sods or stones around the bottom of the poles to form a raised bed as you would for a hay stack bottom, and then pull your beans and stack them in a single course around the stake, the roots inward, and dryest vines at the bottom, and a tangled bunch at the top to hold the stack to its pole, and your beans will cure and look clean and bright, and the leaves and pods will be eaten with great avidity by the sheep. There is no other inexpensive way to cure field beans.

The Cultivation of Peas.—A light, rich soil, abounding in vegetable mould, produces the earliest peas; but a strong loam inclining to clay, yields the largest crops.

Elihu Burritt says: The theory, recently advocated of planting peas very deeply in the earth, in order to prolong the bearing capacity of the vines, has been well tested in Williamstown, and found to be correct. A farmer told me that he plowed a furrow beam deep; then scattered the seed peas at the bottom; after which he turned a deep furrow upon them with his plow, covering them, if possible, to the depth of twelve or fourteen inches. They pushed their way up through the thick mass of earth very soon, and, instead of turning yellow at the bottom and dying after the first gathering, they blossomed and bore until he was tired of picking the pods.

How to Grow Beets.—A Mr. Gaskill, of Minn., writing to the *N. Y. Tribune*, says: Some one asks why beets are smaller inside the beds. I plant on ridges, and raise beets uniformly of large size, especially the white sugar variety, averaging from five to ten pounds. Cultivate both beets and turnips on ridges, and you will have them of large size.

Medical Qualities of Carrots.—Stewart, in his excellent work on Stable Economy, says: "Not only do carrots give strength and endurance to sound horses, but also give recovery and health to such as are sick. There is nothing better, perhaps nothing so good. When first given they are slightly diuretic and laxative, but as the horses become accustomed to them these effects cease to be produced. They also improve the state of the skin. They form a good substitute for grass, and an excellent alterative for horses out of condition. To sick and idle horses, they render grain necessary. They are beneficial in all chronic diseases connected with breathing, and have a marked influence on chronic cough and broken wind. They are serviceable

in diseases of the skin; and in combination with oats restore worn horses much sooner than oats alone.

To Have Mushrooms in Winter.—Provide boxes three feet long and one foot eight inches deep; a quantity of horse droppings perfectly decomposed; some spawn and some light dry soil. Fill the boxes by layers of droppings, spawn and soil, which must be trodden perfectly tight; repeat these triple layers till the boxes are full, and all trodden firmly together. Four such boxes at work are sufficient for a moderate demand. The surface of these portable beds must be covered with a little hay, and occasionally, though sparingly, watered. Set them on the flue of a hot house, stove, in the kitchen, pantry or other warm place.

THE VEGETABLE GARDEN.

Gardening was the first employment, and it is still the most agreeable, healthful, and esthetic, and should thus be practically esteemed by every family, and especially by every lady of refined taste. A garden is the place for beauty, pleasure, health, and all sweet thoughts. It is a choice place of occupation for a leisure hour, to all who have an elevated and pure taste, and it should be a favorite occupation with every lady; she should have her plants and shrubs and employ herself in attending to them, in the open air, one or two hours every day, when the weather will at all permit. American women grow old and die before their time, for want of out-door exercise, which can better be afforded in the garden than anywhere else.

Nothing teaches patience like a garden. You may go round, and watch the opening bud from day to day; but it takes its own time, and you cannot urge it on faster than it will. If forced, it is only torn to pieces. All the best results of a garden, like those of life, are slowly but regularly progressive.

No one can be truly said to live who has not a garden. None but those who have enjoyed it can appreciate the satisfaction—the luxury of sitting down to a table spread with the fruits of one's own planting and culture. A bunch of radishes, or a few heads of lettuce taken from the garden on a summer's morning for breakfast, or a mess of green peas or sweet corn, is quite a different affair from that brought from market in a dying condition. How many in the smaller cities and villages of our country, possessing every facility for a good gar-

den, either through indolence or ignorance are deprived of this source of comfort. And how many farmers, with most of the luxuries of life, are content to plod on in the even tenor of their way, never raising their taste above the 'pork and beans' of their fathers.

We enjoy our gardens the more from having had a little trouble in adorning them, as we relish nuts that we crack better than those that we buy cracked.

What Can be Done on a Small Lot.—A correspondent of the *Country Gentleman* writes from Baltimore Co., Md.: Our dwelling, front yard, back yard, cistern, out-houses, poultry house, kitchen garden, peach orchard, and flower garden, occupy a space of fifty feet by a hundred, which is less than one-eighth of an acre. Upon this small portion of the North American Continent, we have room to cultivate quite a variety of choice roses, verbenas, hyacinths, tuberoses, chrysanthemums and dahlias. These occupy a space of twenty-five feet square, and about the same space is devoted to our kitchen garden, flanked by about half a dozen young peach trees, and capable of producing a respectable quantity of carrots, onions, beets, tomatoes, and radishes. Being somewhat enthusiastic on the subject of Poultry, we have used a large portion of the remainder for their accommodation, and have raised the past summer one hundred and fifty chickens, chiefly Brama Pootras and Cochins, the profit on which is probably something more than the ground devoted to them would have yielded. The ground was given to man to be cultivated. It is his great inheritance. And because he has but one acre, or one square rod, shall he be like the man who hid his talent in the earth? It is the judicious and thorough cultivation of small portions of land which is the most profitable; just as frequent returns from a small capital make men rich far oftener than great investments.

One Acre.—The following were raised in Plainfield, Mass., on one acre in one year: Forty bushels of corn and stalks, equal to more than one ton of hay; one hundred and fifty bushels of potatoes; seven large cart-loads of pumpkins; fifteen bushels of carrots; twenty bushels of turnips; three bushels of onions; forty cabbages; one bushel of beans, after supplying the family during the summer; a lot of peas; and fifteen bushels of sugar beets.

Best Site and Soil for a Vegetable Garden.—James Jones, gardener of Girard College, Philadelphia, has made an essay on the preparation, management, &c., of a vegetable garden, from which we give the following extract:

"The best site for a vegetable garden is one sloping to the south, or

south-east, preferably the former, as better protected from the north-westerly winds, and the aspect being to the sun, earlier crops may always be obtained. The soil should be naturally rich and deep, so that the long roots of beets, carrots, parsnips, horse-radish, and the like, may easily penetrate beyond the influence of long droughts; for with good, deep cultivation, plenty of well decomposed barnyard manure and good seed, you will not fail of good results. Whatever the aspect, if it have not a natural slope sufficient for surface drainage, be sure to French shore (?) so that the surface water will easily run off. Plow or spade at least eighteen inches deep—better still, twenty-four inches;—deep tillage is indispensable. As in most gardens a general assortment of vegetables is required, they should be arranged according to the *height* of the different crops, so as to protect against the effects of too hot suns and high winds. The ground can be worked either by hand or horse labor, observing, as an inflexible rule, never to work the soil while wet. The Girard College garden is worked by horse labor; it consists of four acres divided into five parts; one for permanent crops, like asparagus, rhubarb, and herbs, and for hot-bed frames along the borders for nursing early plants for table use and transplanting; these are indispensable in every well regulated garden."

Fineness of Soil.—"The fineness of the particles of a soil greatly influences its fertility. On the surface of a block of granite only a few lichens and mosses can exist; crush the block to a coarse powder and a more abundant vegetation can be supported on it; if reduced to a very fine dust and duly watered, even the cereal grains will grow and perfect fruit on it. Thus two soils may have the same chemical composition, and yet one may be almost inexhaustibly fertile, and the other almost hopelessly barren.

Early Sowing.—The *American Agriculturist* says on this subject: A few bright, warm days such as always occur the latter part of April, are usually sufficient to bring on an attack of the planting fever. The garden must be plowed or spaded, beds laid off, and in go the beets, carrots, parsnips, turnips, etc. They find a cold bed, the soil is packed over them by repeated rains, and many of the seeds rot outright, or the slender germs fail to lift the heavy soil pressing upon them. It is far better to leave sowing most seeds until the ground is dry and warm. A few of the hardy sort, such as early peas, potatoes, onions, lettuce, tomatoes, radishes, spinach, salsify, etc., may be put in during the month of April, but May 15th is sufficiently early for the generality of seeds. They will then come up quickly and grow rapidly; every one knows, that a quick grown vegetable is far better than

one which has taken a whole season to mature. Beets for late fall and winter use do best when sown from the first to the middle of June.

Pots for Plants.—The authority above quoted states that the smallest can be purchased in some places for less than one dollar per hundred. You can start all kinds of garden stuff, flowers, &c., in them with great advantage and economy. Fill with earth, plant one or more seeds in each, set on the warm side of a fence or building, water as needed, cover on cold nights with old carpets, blankets, or straw. Transfer to the open ground as soon as warm enough, by inverting the pot, with the hand upon the earth, the plant passing between the fingers, letting the ball of earth drop out on the earth unbroken.

Transplanting Vegetables and Annuals.—Seedlings may be safely transplanted in hot and dry weather, if shaded for a few days by a common flower pot. The hole at the bottom serves as a chimney. Toward evening take off the pot, and replace it in the morning. Raise the side by a stone placed under, as the plant becomes established, and finally remove it altogether. The pot keeps the ground moist, and is much better than watering.

Transplanting Boxes.—These are made of wood or other material from three inches high and three inches in diameter to twenty inches each way, without bottoms, set in shallow boxes or on boards, filled with soil, a few seeds put in each, the whole set under glass or brought into the house to start, and transplanted by slipping the boxes off the boards into holes made in the garden large enough to receive them, and drawing the earth around them, then after loosening the box by a few slight raps, lifting it out, leaving the roots undisturbed.—*American Agriculturist.*

Flower pots answer the same purpose, and perhaps quite as well.

A Cheap Hot Bed.—Some six weeks before planting in open ground, take horse manure with or without an equal amount of forest leaves mixed through it. Throw it into a heap and turn over at intervals of a few days until it begins to heat, then in a dry place make into a bed two feet deep and eighteen inches larger each way than your frame, built up in equal layers, and beaten occasionally with the back of the fork to make it somewhat compact, finished with the fine manure, spread evenly on the top. On this place the frame which may be a rude box, one foot high on the side fronting the south, and two feet high at the rear. Put into it rich mold six inches deep, and smoothen it over. Then cover with old window sash. Raise this a little through the heat of the day, and close toward night. After a few days the heat will be moderate (60° or 70°) when the seeds may

be sown. Continue to raise the rear end of the sash during the heat of the days, closing them before the bed cools too much, sprinkle as may be necessary water warmed to the temperature of the bed, and cold nights cover with straw, mats, or shutters.

Paper for Hot Beds.—Paint strong brown paper with two or three coats of boiled linseed oil; or, to six pints linseed oil, add two ounces sugar of lead and a quarter pound of white resin. These must be thoroughly mixed while hot, and applied at once.

Varnish for Cloth for Hot Beds.—Three pints best boiled linseed oil, four ounces white resin, one ounce sugar of lead. Heat the oil moderately and put in the resin, after having first pulverized it. The lead should be ground with a little of the oil, and added to the whole after the resin has melted.

Another.—Four ounces linseed oil, two ounces lime, two ounces white of eggs, two ounces yellow of eggs. Mix the oil and lime intimately. Beat the white and yolk of eggs very thoroughly separately. Then stir in the white. Lastly the yolk.

Cold Frames.—Make like a hot bed without the manure to create heat. Set it directly on fine mellow soil. The heat of the sun and the moisture are kept in by the glass. It is of great help in forwarding seeds. Hand-glasses can be made by covering small wooden boxes with panes of glass.

How to Water Plants.—This is usually badly done. Water is poured upon the surface, enough, perhaps, to wet down an inch or two. The water washes the fine earth into the chinks and interstices, and there the plant stands with dry or only moist soil below, but with a baked mass on the surface which shuts out warmth, air, and the moisture that would be derived from its free circulation. One of two methods should be adopted. Remove the surface earth and pour on water enough to reach the wet subsoil, and when the water has soaked in, replace the dry surface soil, to be moistened from below; or make a hole as near the plant as you can without disturbing the roots, and fill this with water two or three times, and afterwards fill it with the dry earth first removed. At all events, when you water at all, water freely, and with the foot or a hoe throw a little dry earth over the surface as the water settles away. These are important hints. A few plants thus well cared for will yield more than three times the number carelessly treated.

Keep tin watering-pots painted and they will not rust and will last a great many years; otherwise they will very soon rust out.

To Get Early Tomatoes.—Sow a pot or two of seed in the green-

house, hot bed, or in a warm window, in the latter case, placing a piece of glass over the pot, to accelerate germination, forming a miniature hot bed. When up into rough leaf, separate into smaller pots. In due time plant on the sunny side of the garden fence or house.

Or for early tomatoes and cabbage plants, fill a box with good rich earth, and sow thinly. Keep warm near a stove or fire-place, and water properly. When the plants are up, place the box on the window-stool, where they can have light and heat. Warm days put out in the air and sun, bringing them in nights. As soon as the frosts are over, transplant into the garden.

Or take a good large turnip, cut off the top, and scoop out to a shell three-quarters of an inch thick. Fill the cavity with rich mold, plant a half a dozen seeds, and place the turnip in a box of loam. Keep in a warm room, by an east window if possible, and sprinkle with tepid water every day, until there is no longer any danger from frost, when remove the turnip to the out-door bed, and thin out all but one plant. Should the turnip shell put out shoots, pinch them off, and the shell will soon rot, affording a fertilizer to the tomato plant, that will send it ahead wonderfully. A dozen turnips thus *tomatoized* will afford an abundant supply of early tomatoes for an ordinary family.

Ripening Tomatoes.—Tomatoes need heading in so as to expose the fruit to the sun, in order to ripen them rapidly. The tomato vine is killed by the slightest frost, but if pulled up before frost comes, and hung under a shed fronting the south, the fruit will continue to ripen for weeks.

Forwarding Cucumbers and Other Vines.—Cucumbers may be forwarded some weeks simply by planting them in the open soil, placing around them, when up, four bricks, laid flatways, and laying over them a pane of glass. The glass may be removed during the day, and replaced at night. The bricks will retain a portion of the heat absorbed during the daytime, and this, acting in favorable conjunction with the exclusion of the night air, will tend powerfully to accelerate the development, and produce a vigorous action of the system throughout. Melons, squashes, and other vines of a similar description, may be advanced by this same very simple and economical process. Broken glass from the shops, which will cost nothing, or, at most, a mere trifle, will answer for this purpose as well as new, and will last for years. Watering frequently and copiously, if the weather be dry, with soap suds, or diluted urine, as a stimulant, will be found singularly advantageous. Gypsum and pulverized charcoal should be frequently sprinkled over the vines as soon as they are up.

How to Raise Celery.—Mr. Gore, of New Jersey, says: My mode of raising celery is this: I dig a trench twelve or fourteen inches deep to set the plants in, and always manure with guano or phosphate. I set a board upon each side of the row, so that no dirt can get into the heart of the plant when I commence earthing up, and keep them there until I get my trench filled as high as the surface of the ground. The soil is a sandy loam. I am very successful, and produce it very fine. I cover the plants with boards in winter, and dig out from one end of the row as I want it. It should be carefully earthed up every day. The most essential thing in raising celery is to blanch it well.

Andrew Fuller, of Brooklyn, says: Seymour's celery is the best. I prefer guano for manure. William Lawton says: I notice the gardeners about here do not use boards, but they are very careful about earthing up the plants every day when they are dry.

Judge Meigs says: I have raised celery with success forty years. The plant loves shade, and must have it when young. I choose such a situation as will be shaded at midday, as the north side of a building, or in the shade of a tree, for the best location for a celery-plant bed.

Says Prof. Mapes: I have tried a great many experiments in growing celery, and have settled the whitest kinds as the best, and that above all other manures, hair, such as I get from skin-dressers, put in the bottom of the trenches is the best. The young plants I cut back three times, taking care not to injure the crown, to make the plants strong before they are transplanted. I prefer to have celery beds upon an inclination where I can run water between the rows, and I have tried sundry things in solution as fertilizers, but never found anything equal to hair, though old expoliated horns do pretty well. Decomposed muck mixed with sand makes an excellent soil for celery.

For blanching celery, the earth alone is used by some, *charred earth* by others, others still use charcoal, and, in its absence, sawdust.

Cultivating Asparagus.—To make a first-rate bed, dig out the ground two and a half feet deep, and fill up with chips, sawdust, tan, or sticks of wood packed close together, five or six inches from the bottom. Then put in five or six inches of the strongest stable manure, and fill up to the top with manure and dirt, about half-and-half. Put the roots about ten inches apart, each way, and cover them about three inches deep with the richest soil to be had, and sow evenly over the whole equal parts of salt and ashes mixed together, say a peck each for a bed five feet wide and twenty feet long, which will abund-

antly supply a family of eight or ten every day from the first of April to the last of June.

The newspapers say asparagus plants of an enormous size, now exhibited in the windows of eating houses at Paris, attract the attention of strangers. Great curiosity is expressed as to their mode of culture. It is said they are planted, not in the usual way, in beds, but separately. As soon as the plant rises a short height from the ground, it is covered with a bottle, under which the plant attains an enormous size before it is fit for use.

How to have Early Salad.—To have early salad in the spring, plant a bed of lettuce in the fall.

To Raise Cabbage Plants.—Cabbage plants may be raised easily from sprouts thrown out by the old stumps. They merely require to be cut from the stump with a portion of its bark pertaining to them, and to be planted in rows like rooted seedlings, and to have the usual watering. It is the mode of raising cabbages universally adopted by the Chinese.

THE FLOWER GARDEN AND HOUSE PLANTS.

Arranging Flower Beds.—To have a well-formed and nicely-filled garden is not enough—it must also be nicely arranged. Nay, the latter is of much more importance than the former. It is of the first importance that the outline of the beds, and their relation to each other, should be good; but it is of much greater importance that the colors with which they are filled should either harmonize or contrast with each other. * * * Colors are separated into cool or warm colors. The former should prevail in gardens laid out on gravel, which is itself generally a warm color; the latter in those laid out on grass, which is invariably a cold color. For instance, in gardens on gravel, gray, lilac, yellow, white, blue, green, &c., should predominate; in those on grass, purple, pink, scarlet and orange should prevail. White however is equally suitable for gardens of both descriptions; and, unless where the gravel is very light, is always striking and effective; and nothing can be more chaste and beautiful than beds, broad margins, or lines of white contiguous to grass—it is equally striking in juxtaposition to bright red gravel. As a practical rule, the most intense colors should be placed in the center of the beds, and the less decided tints used for contrasting rings or edgings. Generally, too.

the smaller the beds, the more liberally may the intense colors, as scarlet, be introduced, and *vice versa*.

The Cultivation of Roses.—The rose requires abundance of air and light, and judicious grouping is indispensable. This may be accomplished by forming a rose pyramid, rising gradually in height from the minutest dwarf at the base to the tallest standard at the apex. As the varieties are almost endless, it would be impossible to enumerate them. Every florist's catalogue will supply the list, and the taste of the operator direct the arrangement. A proper discrimination should, of course, be manifested with regard to the time and continuance of blooming, so as to secure the finest possible effect.

Care of Dahlia Roots.—The roots should be dug up as soon as the first hard frost has spoiled their foliage. Cut the stem about six inches above the tubers; then lay them up to dry. After they have become dry, pack them in the cellar, there to remain until they begin to grow in the spring; then plant them out in the borders, previously dividing the roots if an increase is required.

To Produce Double Flowers from Single.—Double flowers are produced somewhat in the same manner as choice fruits. By years of careful culture, and the raising of new varieties from seed, improvement is effected. In double blossoms, the seed producing qualities are sacrificed in the production of an extra number of petals, and sometimes, therefore, double flowers, like the Ten Weeks Stock, produce no seeds, or very few, like the Balsam. In cases where the double flower produces no seed, it must be saved from single flowers growing near or surrounded with double ones. In that case, the pollen from the double flower affects the single plant, and the product is a good proportion of double flowers. We have not space at present to discuss the physiology of the matter.

How to Water Plants.—As a rule, never water plants until the further withholding of it would be detrimental. Habitual watering, in a majority of cases, does more hurt than good. Plants left to battle with drought, send their roots deep in search of moisture, and when rain comes they are more benefitted than those that had regular watering. Ground that is deeply tilled and under-drained rarely suffers much from drought. Plants that have just vegetated, or that have recently been transplanted, should be watered—as should be succulent vegetables expected to grow quick, and pot plants. There are two important points to be attended to in giving water; one is to expose it to the sun before using it, and the other is to give a thorough soaking at once, sufficient to keep the ground moist for a week. Supposing the

supply to be limited, but regular, the best way of economizing both water and time, is to take the garden piece by piece, watering each thoroughly every evening, and then beginning again as at first. Once begun it must be followed up until rain falls in sufficient quantity to wet down among the roots.

Wild Flowers.—Some may be found which, by careful cultivation, will prove valuable additions. The peculiarities of soil, shade, moisture, &c., where they grow naturally, should be noted for future guidance.

Bags for Saving Flower Seeds.—Save envelopes that you have received, cut them transversely and seal up where thus cut with gum arabic, each envelope making two convenient seed pockets.

Annuals.—The plants generally known as annuals, are raised from the seed, perfect their flowers, mature their seed the same season, and then perish. There are some flowers, however, cultivated as annuals, that are such only in a northern climate, being in their own more congenial region perennials, or biennials. Among them are the verbenas, chriséis, or eschscholtzia, as it was formerly called, commelina, mirabilis, and many others. This class of annuals may be kept through the winter in green houses or in any light cellars. Annuals are most appropriate for those who are changing their abode from year to year, as from these alone a fine display may be kept up the whole season, with the exception of the vernal months, and this deficiency may be supplied by having a choice collection of perennials, grown in pots, which can be plunged in the ground, and thus removed at any time when it is necessary to change the residence.

Biennials.—Biennials are those plants which flower the second and sometimes the third year from the time the seeds are sown, and then perish, as the hollyhock. Sow, for the most part, in early spring, in light soil, and plant out in the following autumn in the situations where they are to flower. Many of the fine double and other varieties never produce seed.

Perennials.—Perennials are those plants which do not in their growth form either trees or shrubs, but which lose their tops, wholly or in part, every year, after they have done flowering; the roots continuing to live and generate for several years successively. Imperfect perennials continue three or more years, and then die, as the sweet william or fox glove, but which, with a little care in dividing the roots every year, can be kept many years. Perennials are hardy, half-hardy and tender. Hardy perennials stand the hardest winter without protection; half-hardy require to be well protected; and tender pe-

ennials must be kept through the winter in the greenhouse. Perennials are of two kinds, bulbous and herbaceous, which, differing materially from each other in habits, require, consequently, a different kind of treatment.

Rock Work.—There are many plants that succeed best when planted among rocks; and, for their accommodation, and to show off their beauties to the greatest advantage, it is common in many gardens to have an appendage called a rockery. This is made of a collection of stones, in the rough or natural state, laid up without much order, with soil, which should be concealed as much as possible by the fragments of rock. As many of the plants succeed best in the shade, a portion of the rock work should be partly surrounded with trees or shrubs, that they may derive that advantage. Trilliums, orchis, cypripediums, and some few ferns, and a great variety of native plants which are found in our woods, with an appropriate soil, would flourish well in such a spot. The rockery should be partly, or wholly, concealed from the general flower garden by shrubs or trees.

List of Hardy Shrubs and Plants.—The following list is by Mr. Fuller, Horticulturist, of Brooklyn, who has worked among flowers as a gardner nearly all his life:

June Roses, blooming once, five varieties; Madame Plantier, pure white; La Belle Africain, very dark; General Foy, violet, spotted; Persian Yellow, deep yellow; Coupe de Hebe, pink.

Moss Roses, blooming once, five varieties; Alice Leroy, red or pink; Cristata, crested, very large, roseate; Laneii, bright red; Unique de Provence, white; Etna, flame color.

Perpetual Moss Roses, five varieties: General Drouat, violet red; Adam Edward Ory, carmine; Salet, bright rose; Herman Kegel, white, slightly striped.

Hybrid Perpetual Roses, ten varieties: Caroline de Sansal, pale incarnadine; Blanche Vibert, white; Giant of Battles, bright crimson; Prince Noir, very dark; Madam Tredeaux, bright carmine; Pius IX, large crimson; Crystal Palace, shaded, incarnadine; Baron Brevost, roseate; Sydonie, light pink; La Reine, very large, rosy lilac.

Climbing Roses, five varieties: Queen of the Prairies, deep pink; Baltimore Belle; Mountjoy, white border, pink center; Mrs. Hovey, pale blush; Perpetual Pink, deep pink.

Shrubs, twelve sorts: Spiræa prunifolia, pleno double white; Spiræa Ivesii, pleno double white; Fortunii, red; Pyrus Japonica, red; Wiegela amabilis, pink; Wiegela rosea, pink; Ribes sanguinea, red flowering currant; Deutzia Grassellas, dwarf, white; Calycanthus lævi-

gatus, sweet scented shrub; Curcui Japonica, Japan Judas tree; Philadelphius coronarius, mock orange; Magnolia gracilis, purple.

Herbaceous Plants: Achillea Ptarmico, Pleno, double white; Campanula, double white; Campanula, double blue; Delyta spectabilis Dictmnus, white; Dictmnus, red.

Digitalis of varieties; Lupinus polyhyllus, of varieties; Lychnis, double scarlet and white; Spiræa, double white and double red; Yucca filamentosa, flower white; Phlox, Roi Leopold, striped.

Climbing Plants for Arbors: Aristalachia sipha; Bignonia grandiflora; do. sanguinea; Wistaria sinensis, blue; do. do., white; Ampelopsis, tricolor; Lonicera, scarlet trumpet honeysuckle; do. chives, evergreen, bluish; do. yellow monthly; Clematis flamula.

Peonies, Lillies, &c.: Pæonia Whitley, double white; Pæonia Pottsii, double crimson; Lilies—Lancifolium album, white crested; do. punctatum, pink crested; do. longiflorum, Chinese, long white.

Proper Time and Mode for Cutting Flowers.—Those who wish to retain the beauty and perfume of their cut flowers would do well to take the following advice:—Never cut your flowers during the intense sunshine, nor keep them exposed to the sun or wind; do not collect them in large bundles, nor tie them tightly together, as this hastens their decay. Do not pull them, but cut them cleanly off the plant with a sharp knife, by which means the tubes through which they draw up the water are left open, and the water is permitted to ascend freely, whereas if the stems are bruised or lacerated, these pores are closed up. Use pure water to set them in, or pure white sand in a state of saturation, sticking the ends of the stalks in it, but not in a crowded manner. If in water alone, it ought to be changed daily, and a thin slice should be cut off the ends of the stalks at every change of water. Water about milk-warm, or containing a small quantity of camphor dissolved in spirits of wine, will often revive flowers that have begun to fade. Place a glass shade over them during the night, or indeed at all such times as they are not purposely exhibited. Shade them from very bright sunshine, and when uncovered, set them where they may not be exposed to a draught of air. A cool temperature during the summer is favorable for them, and a removal of the slightest symptoms of decay is necessary. When carried to a distance, carry them in a shallow, air-tight tin case, or cover them with paper to exclude them from air and light. Charcoal saturated with water is also a good media to stick them in, and the thinner they are kept the better.

To Preserve a Boquet.—First sprinkle it lightly with fresh water.

Then put it into a vessel containing soap-suds, which will nutrify the roots, and keep the flowers as bright as new. Take the boquet out of the suds every morning, and lay it sideways, the stalks entering first, in water. Keep it there a minute or two, then take it out, and sprinkle the flowers lightly by the hand with water. Replace it in the soap-suds, and it will bloom as fresh as when first gathered. The soap-suds need changing every three or four days. By observing these rules, it is said, a boquet can be kept bright and beautiful for at least a month, and will last longer in a very passable appearance. See article above.

To Obtain Fresh Blown Flowers in Winter.—Choose some of the most perfect buds of the flowers you would preserve, such as are latest in blowing and ready to open, cut them off with a pair of scissors, leaving to each, if possible, a piece of the stem about three inches long: cover the end of the stem immediately with sealing wax, and when the buds are a little shrunk and wrinkled, wrap each of them up separately in a piece of paper perfectly clean and dry, and lock them up in a dry box or drawer; and they will keep without corrupting. In winter, or at any other time, when you would have the flowers blow, take the buds at night and cut off the end of the stem sealed with wax, and put the buds into water wherein a nitre or salt has been diffused, and the next day you will have the pleasure of seeing the buds open and expand themselves, and the flowers display their most lively colors and breathe their agreeable odors.

To Revive a Fading Flower.—Cut the stalk, and hold it a few moments in the flame of the candle, and then set the flower again in the cold water, when it will recover its strength almost visibly after this violent assistance, and blossom immediately.

To Crystalize Flowers.—The experiment is simple and can be tried without difficulty. Dissolve eighteen ounces of burnt alum in a quart of soft spring water, (observing proportion for a greater or less quantity,) by boiling it gently in a close tinned vessel over a moderate fire, keeping it stirred with a wooden spatula, until the solution is complete. When the liquor is almost cold, suspend the subject that is to be crystalized, by means of a small thread or twine, from a lath or small stick laid horizontally across the aperture of a deep glass or earthen jar, as being best adapted for the purpose, into which the solution must be poured. The respective articles should remain in the solution twenty-four hours; when taken out they are carefully to be suspended in the shade until perfectly dry. When the subjects to be crystalized are put into the solution while it is quite cold, the crystals are apt to be too

large; on the other hand, should it be too hot, the crystals will be small in proportion. The best temperature is about 60° Fahrenheit.

Among the vegetable specimens that may be operated upon are moss rose or holly, fruit of the sloe bush, the hyacinth, furze blossoms, ranunculus, garden daisy, pink, and a great variety of others; in fact, there are few subjects in the vegetable world that are not eligible to this mode of preservation. The fitness of the solution for the purpose may be ascertained by putting a drop of it on a slip of glass and seeing if it crystalizes as it cools; if so, the solution is sufficiently strong. Then twist around a sprig of a plant, a tinder, or a wire ornament of any kind, some cotton, or still better, worsted. After being immersed, as already indicated, the surface of the whole will be found covered with beautiful crystalization.

The effect of the above is very pretty, and is especially adapted to winter bouquets.

Pretty Experiment.—If an acorn be suspended by a piece of thread within half an inch of the surface of some water contained in a hyacinth glass, and so permitted to remain without being disturbed, it will, in a few months, burst, and throw a root down into the water, and shoot upward its tapering stem with beautiful little green leaves. A young oak tree growing in this way on the mantle-shelf of a room is a very interesting object.

Preserving Grass and Flowers.—The German mode is to take large shallow pans or boxes, and covering them with a layer of the finest and dryest sand, to lay the grasses in this, and carefully sift in more sand till all are completely covered. The sand is then kept for some days exposed to slight heat, at the end of which process it is left to cool gradually, and the flowers or grasses when taken out are found to retain perfectly their natural form, and, with little difference, their own color also.

Plants in Dwellings.—There are few tokens so truthful of a happy home as a display of fragrant flowers in a parlor window.

Plants in dwelling houses are generally kept at the windows, and, except in very hard winters, suffer but little; these will be greatly assisted by removing them to a stand in the middle of the room at night, and keeping them there, if there be much of a frost, as that would be more felt at the windows than in the middle of an apartment.

One great point to be attended to in all cases, is to give no more water than is absolutely necessary to keep them alive. We do not mean by this that they are to have but little at a time, for that will destroy the most hardy plants in existence, but that they are not to be

watered oftener than they require it—and this, when plants are at rest, is very seldom indeed; but when they do want it, all the soil in the pot should be watered, but it should never be given them a day before they need it. When a plant is at rest, it will stand a much greater degree of cold than when growing, and the tendency of watering too much is to excite growth, or, failing in that, to rot the roots, and therefore it ought to be avoided; the same remark also applies to plants in a greenhouse. When a plant will grow, the proper nourishment must be afforded; but when at rest, it must not be excited to grow.

Window Flowers.—When the windows and balconies are filled with a selection of plants according to taste, and these are planted into moderately large pots sufficient to last them through the growing season, they will require little other attention besides watering, which must be very regular and constantly done. Plants in this situation, from the position they occupy, are extremely liable to suffer from drouth, if there is the least neglect in administering their supply of water. This applies equally to all kinds of plants cultivated in these situations. In order to protect the plants from injury in consequence of the powerful rays of the sun striking directly on the side of the pots, often very thin, and forming a mere shell around the roots, it is advantageous to set the pots containing the plants within others just large enough to contain them; the double sides of the pots, together with the small open cavity all around between the two, prevent the evil to a very great extent; and it may be still further prevented by choosing the exterior pot still larger, and filling the cavity between the two with moss, which is to be kept damped. Where moss is easily procured, a bed of it may be formed on the window-ledge, in which the pots could be placed, the moss being kept damp.

Watering Window Plants.—There is one universal law as to watering plants which a great many people entirely neglect. The neglect of this one rule causes more blight and more unhealthy plants than perhaps any single thing that can be named besides. I mean the excellent rule of watering them with warm water, always rather warmer than the soil the plants are growing in. People must surely see the check and injury it must be to plants always to get cold food. The organs of tender plants are extremely delicate; and when they are wanted to digest their food it is a bad plan surely to paralyze them with cold. If we feed them, on the other hand, with food a little warm, they are stimulated at once to make the most of their meal.

Another important branch of the watering question consists in the washing that all house plants require.

Soil for Parlor Plants.—The best soil for plants in pots is generally mixed with vegetable mould and sand; and the pots should be nearly a quarter filled with little bits of broken pots, called pot-shreds, so as to ensure complete drainings. When plants are shifted, they are turned out of the old pots into new ones, a size larger. Plants should never be de-potted when in flower; the best time, indeed, is when they are growing, before their flower-buds begin to swell—as when the flower-buds have appeared, they should be allowed to remain undisturbed until the growing season is completely over.

In-Door Gardens.—Why should not the country cottage have its conservatory as well as the city mansion? The materials need not be costly. Fence off the warmest corner of the piazza with a few plain sashes glazed with common window glass, and convey into it, in the most convenient way, enough of the artificial heat that warms your dwelling to keep Jack Frost out, and you have an eligible site and a sufficiently genial temperature for your little winter garden. You need not go to the tropics for expensive flowers and shrubs to stock it. There are plenty of sweet-smelling garden plants that will bud and bloom in mid-winter, if you coax them with a congenial atmosphere. Many varieties of the rose-tree will keep in “full bearing” all the year round under such circumstances, and you can always be two or three months in advance of the natural season with your house-warmed violets, jonquils, daffodils, hyacinths, double-daisies, crocuses and snow-drops. Most of the aromatic garden shrubs may be kept green and fragrant throughout the winter in your cosy corner, and if you have no such corner, surely you have a couple of windows that look toward the south, where a few floral pets, in pots and boxes, may smile in the face of winter. There is something delightful in the companionship of our vegetable *proteges*. It is refreshing to see the dainty nurslings we have protected so carefully from the cold, burst into blossom in the depth of winter, as if in gratitude for our fostering care.

We like people who are fond of flowers. It is a sign that they have souls. Persons who are indifferent to bloom and perfume may be set down with the Goths, who take no delight in music, as

“Fit for treasons, stratagems and spoils.”

Keep House Plants Clean.—A writer in the *London Cottage Gardener* relates an experiment showing the advantage of keeping the

leaves of plants free from dust. Two orange trees, weighing respectively eighteen ounces and twenty ounces, were allowed to vegetate without their leaves being cleaned for a year; and two others, weighing nineteen ounces and twenty and a half ounces, had their leaves sponged with tepid water once a week. The first two increased in weight less than half an ounce each, while of the two latter, one had increased two and a half and the other nearly three ounces. Except the cleansing, the plants were similarly treated.

Frosted Plants.—Thaw them gradually, says the *Horticulturist*, and in the dark. If but a single plant, immerse it in cold water, and set it under the greenhouse stage; if the whole house be frozen, put up the shutters, or throw on mats over the glass, and syringe well with cold water.

Insects Infesting House Plants.—There are several kinds of insects which are great pests to the cultivator of flowers, and for which a vigilant watch should be maintained in order to prevent their ravages.

The most common kind of these insects is the green louse, which often completely covers the young and tender shoots of roses and other plants. These may easily be destroyed by inverting the pots over a tub of water or soap suds, and, immersing the plants, waving them gently to and fro. A soft brush will assist in removing them. It will be necessary to tie a piece of cloth over the soil in the pot, or use some other similar means to prevent the soil from falling out while performing this operation. The green fly may be destroyed in the same manner. In greenhouses tobacco is generally used to fumigate the plants, by burning in a furnace, but this is an offensive operation in the house. It may be performed, however, on a few plants at a time, by taking an iron vessel of any kind, putting in a few live coals and a small quantity of moist tobacco, and turning over this and the plants a barrel or large box, and allowing them to remain for some time.

There is another insect, more difficult to get rid of, which is frequently found on house plants. It is a species of *cocus*, commonly known as the mealy bug. They are generally to be found in the axils of the leaves, and greatly resemble little wads of cotton. They cannot be removed by washing, but must be picked off by the hand. This is a slow process, but it must be done when they first appear, or your plants will be ruined by them, as they increase rapidly.

These are the ordinary insect pests against which it is necessary to guard your plants. The red spider is also a nuisance. These are very small, in fact, almost invisible except to a close observer. Their presence may be inferred if the foliage appear yellow and sickly. On

observing this, turn up the leaves, and you will probably find the little rascals at work. They may be destroyed by profuse and repeated syringing of the plants, and particularly of the under side of the leaves.

Constant vigilance is necessary in the cultivator of flowers to enable him to check the operations of these insects before they have had an opportunity to accomplish much mischief.

Plants in Sleeping Rooms.—There are two distinct and apparently opposite processes going on in the plant: 1. The decomposition of carbonic acid—the fixation of the carbon for the purpose of building up its own tissues—and the liberation of the oxygen. This constitutes vegetable nutrition. 2. The exhaling carbonic acid, the result of the union of the oxygen of the atmosphere with the carbon of the vegetable tissues. This is analogous to respiration.

The first of these processes is not only beneficial to animal life, but absolutely essential to its existence, for as the animal inhales oxygen and exhales carbonic acid in the process of respiration, if some agency did not work out the reverse change, the whole of the oxygen in the atmosphere would be used up in a certain length of time, (800,000 years according to Professor Dumas,) and animal life consequently disappear. But, as it is, animals and plants are thus mutually dependent upon each other; and this is the case, not merely with regard to carbonic acid, but also some other compounds, such as ammonia, water, &c., which are formed in animals and decomposed in plants. So far, then, it is healthy to have plants in rooms. But there is the second process—a kind of decay, or by some looked upon as true respiration; and as this is precisely what occurs in animals, it must, of course, add to the carbonic acid of the atmosphere, and thus produce an effect prejudicial to animal life. If both these processes were carried on to the same extent, the one would as a matter of course, counteract the other, and neither would produce either good or evil as to its effects upon the atmosphere. But as the former, under general circumstances, preponderates excessively over the latter, it is on the whole healthy to live amongst plants. There are circumstances, however, in which the respiratory process is active, and the nutritive at a standstill, and here the influence of the vegetable upon the atmosphere will be injurious to animal life. One of these circumstances is the absence of sunshine, or daylight, as these stimuli are necessary to the carrying on the process of nutrition in the plant. It is therefore injurious, more or less, to sleep in a room in which there are plants.

The Perfume of Flowers.—An English writer regrets the waste of

flowers in many gardens, and recommends their use in perfuming for domestic purposes. The cultivation of flowers for this purpose, says the writer, is carried on to an enormous extent in the South of France, the weight of blooms from which the odor is there extracted being reckoned by thousands of pounds. Highly purified fat is used for the purpose of absorbing the scent, which is thus transferred to the perfumer, who then re-extracts it from the fat by the aid of spirits of wine, for which it has a still stronger affinity. Why should we not grow flowers for their odors as well as their colors? There are scores of flowers in our gardens that would yield admirable extracts with a little pains. For instance, there is heliotrope, the lily of the valley, honeysuckle, myrtle, clove, pink and wall flower. We have extracts from all these flowers in the perfumers' shops; but they are nothing but skillful combinations of other scents. He further suggests that every lady be her own perfumer, and gives us a recipe for obtaining scent from heliotropes, or any other sweet-smelling flower. Now that our gardens are in full beauty and perfume, some of our fair readers may like to try the experiment for themselves, and we therefore give them the benefit of the recipe:

At the season when the flowers are in bloom, obtain one pound of the lard, melt it and strain it through a coarse hair sieve—allowing the liquid fat, as it falls from the sieve, to drop into cold spring water. This operation granulates and washes the blood and membrane from it. In order to start with a perfectly inodorous grease, the process may be repeated three or four times, using a pinch of salt and a pinch of alum in each water; it is then to be washed five or six times in plain water; finally remit the fat, and cast it into a pan, to free it from adhering water. Now put the clarified fat into a glue pot, and place it in such a position, near the fire, or the greenhouse, or elsewhere, that it will keep warm enough to be liquid; into the fat throw as many flowers as you can, and there let them remain for twenty-four hours. At this time strain the fat from the spent flowers and add fresh ones; repeat the operation for a week. We expect at the last training, the fat will have become very highly perfumed, and when cold, may be justly termed *pomade a la heliotrope*. To turn this pomade into an extract fit for the handkerchief, all that has to be done is to cut the perfumed fat into small pieces, drop it into a wide-mouthed bottle, and cover it with highly rectified spirits, in which it must remain for a week; when strained off, the process is completed.

Preserving Flowers and Fruit.—A friend has just informed us that fruit and flowers may be preserved from decay and fading by immer-

sing them in a solution of gum arabic and water two or three times, waiting a sufficient time between each immersion to allow the gum to dry. This process covers the surface of the fruit with a thin coating of the gum, which is entirely impervious to the air, and thus prevents the decay of the fruit, or the withering of the flower. Our friend has roses thus preserved which have all the beauty and fragrance of freshly plucked ones, though they have been separated from the parent stems for many months. To insure success in experiments of this kind, it should be borne in mind that the whole surface must be completely covered; for if the air only gets entrance at a pin-hole, the labor will all be lost. In preserving specimens of fruit, particular care should be taken to cover the stem end and all with gum. A good way is to wind a thread of silk about the stem, and then sink it slowly in the solution, which should not be so strong as to leave a particle of gum undissolved. The gum is so perfectly transparent that you can with difficulty detect its presence, except by the touch. Here we have another simple method of fixing the beauty of nature, and surrounding ourselves ever with those objects which do most elevate the mind, refine the taste and purify the heart.

Horticultural Waifs.—Double roses and flowers are unnnatural, and are induced by high culture. The fullest roses will produce seed if grown for a while on poor soil. Some varieties of vegetables and flowers are more prolific if their seed is kept several years. Prize melons have been grown from seed twelve years old, and the balsam, or lady's slipper, is more likely to come double from old seed than from that freshly gathered. Most varieties of seeds, however, are injured by long keeping. An overgrown specimen of fruit is generally considered coarse and deficient in flavor. The third or fourth eye of the grape produces larger and better fruit than the first or second. Grapes, raspberries, and strawberries do better for being covered through the winter. A plant may lie in solid ice all winter and not be injured if the water runs off when it melts. Seedling fruit trees are less liable to disease than budded or grafted ones, and grafted trees generally produce fruit sooner than budded ones, and either sooner than seedlings. Nearly all foreign varieties of strawberries are from American varieties. These are mostly sent wild from Virginia, and when Anglicised and named sufficiently, are sent back, usually with poor success. The Triomphe de Gand is an exception from Belgium. A good fresh virgin soil, or the top earth of an old pasture is better than any artificial soil for carnations. Land that has been in sod harbors the wire-worm; the wire-worm is sometimes destruc-

tive to plants, and a dressing of lime and ashes, just before a rain, is destructive to the wire-worm. Liquid manures often hasten the bloom of plants at the expense of their color. Foreign grapes grown in the open air, in our climate, are inferior to our best natives, and thus far have otherwise proved unsuccessful.

LAWN AND TREES.

Plant Trees.—There is no way a man can so effectually rear a monument to posterity, and one for which he shall receive their blessing, as by planting a tree; no matter whether a shade tree that shall protect from the scorching rays of the midsummer's sun, or one that shall yield a luxury in its wealth of delicious golden fruit.

Trees are not limited in their value to the proprietors of them. Every citizen, rich or poor, property holder or day laborer, shares in their common benefits. They are like nature's other bounteous gifts to man—the air, the water, and the sky—they can not be exclusively appropriated, but exist for the benefit of all. Wherever a green tree spreads its umbrageous arms, every passer-by is proprietor of its charms, and can enjoy its coolness and freshness as much as the owner. Trees gladden the face of the whole city, and make all men partakers in their beauty.

He who plants a tree is one of the foremost of human benefactors; his own generation will hold him in grateful remembrance, and his children will rise up and call him blessed. In no other way, so simple and so unexpensive, can an equal amount of pleasure and of comfort be conferred upon one's neighbors and fellow citizens, as by the liberal planting of trees by the owners of property. They are a living testimony to the taste and public spirit of the planter, and afford a choice and permanent protection to the houses they ornament, from the summer fervors of the sun.

The advice of the old laird of Dumbiedikes to his son deserves to be written in letters of gold in the family record of every man who owns a rood of land:—"Ay, stick in a tree now and then, Jack; it will be growing while ye are sleeping." Many men build fanciful structures of perishing materials, in the vain hope of winning a name for taste and enterprise; but the green trees that rear their luxuriant branches against the blue sky, growing taller and broader every year, are living monuments of the taste of their planters, which will keep

their memory green when fickle fashion has recorded a sentence of condemnation against gingerbread houses and fancy fences. The groves and woods planted by Sir Walter Scott, at Abbotsford, are pointed out as memorials of taste, while the proud pinnacles of the baronial mansion he erected are shown as evidence of the weakness of an otherwise great and good man.

Sir Walter found the lands of Abbotsford wholly or nearly destitute of trees, and when he went to work planting them with his own hands, he was ridiculed for his weakness, and told that he would never live to reap the benefit of his labors, for he was then past the meridian of life. "No matter," was his noble answer, "posterity will thank me for it." He did live, however, to see the previously naked slopes and hills stretching around him densely covered with luxuriant foliage, and to fell many a sturdy ash with his own hands, so dense had his plantation become. There is no more beautiful object in nature than a symmetrical thrifty tree, with its tall shafts rising to the sky, and its regular branches expanding on every side. Sir Walter realized this; his quick eye and appreciating faculties were impressed, and by following out the dictates of his cultivated taste, he erected more enduring monuments to his honor and memory than the proudest old feudal pile could ever prove.

Even in midwinter a noble tree is not ungraceful, with its fine outline and delicate tracery of interwoven twigs and branches. A gigantic oak standing alone and leafless, and battling with the December blast, is a grand spectacle; but when leafy June has made of it a verdant pyramid and bower—when the birds, building among its branches, have made its interior vocal—when the winds sigh or murmur through its foliage, like an *Æolian* harp, and its grateful shadow in the sultry summer noontide lies broad and cool upon the emerald grass—or when the welcome raindrops patter musically on the garniture of leaves, then indeed, as we behold its gladsome glory, we realize that "a thing of beauty is a joy forever."

The man who plants a tree, erects a monument to his taste—a memorial that will live years after he himself has mouldered into dust. What more graceful remembrancer than a tree to commemorate some striking event in the history of a family—the birth of an heir—the anniversary of a happy marriage? What purer pleasure than to mark the growth of a tree from year to year, till from a tender sapling it rises to the lofty pyramid of verdure, with the birds of Heaven building among its branches? No man that ever set out a tree regretted it. We speak not here of fruit trees, for they are a sort of





speculation—but of ornamental trees, things of beauty, to be cultivated in an æsthetic spirit that looks far above considerations of pecuniary profit.

The villages of New England are among the pleasantest in the world, and the chief secret of their charm is summed up in one word: TREES. The people who laid them out a century or two ago, had the good sense to plant a few score of young trees about the green and along the streets. Now, look at them! Glorious elms arch the streets, and envelop the place in shade. The meanest cottage is pleasant and picturesque if it stands beneath a fine old tree. The poorest village is good to live in if it nestles under giant trees. Plant trees. Plant them round the school house. Plant them round the church. Plant them on the common. Plant them along the street. Make all the villages and towns pleasant with trees.

It has been recommended for the young men to form “tree planting clubs.” The idea is a good one. Let the young men in a village or town set apart a day in spring or autumn for the purpose of setting out shade and ornamental trees.

Spare the Woods.—God’s providence is marvelous, if we will but observe how it pervades all things in nature that concern our lives. Not least is it visible in the uses of the woods, which, were they truly understood, would make us lovingly careful of the trees. When the farmer denudes an otherwise sterile hill or plain of its forest crown, he little considers that he may be destroying a value for all his lands, far greater than the money he gets for his cord-wood, timber and rails. If he has not studied the relations of nature’s forces, he has not learned that the earth receives more of its renewing through the agency of trees, than from the hand of man. Of electricity, which is one of the most vital needs of the earth, trees are the natural conductors; and any one who observes, may see the wooden country drawing the electric and rain-freighted clouds, while the surrounding woodless spaces are parched and blistered with drouth.

No country is arid and desert where trees abound, but many lands have been shorn of spontaneous verdure and of noble navigable streams, by being for ages stripped of woods. In parts of Spain, there are dry beds of old rivers up which the Roman galleys were wont to sail, in the days of the Cæsars, but where now there are scarcely dribbling brooklets. High up in the sides of rocks, above which the stunted olive lives a feeble, thirsty life, remain the iron bolts driven by the old navigators, ere the forests that fed and made rivers were destroyed. Still, from lessons such as these, written abundantly

in every cultivated quarter of the globe, man does not get wisdom to spare trees, where God evidently intended they should grow as long as the earth lasts; or to plant them, on spaces where trees only would grow. The trees are not only conductors of electricity, but they attract and hold excesses of moisture—of night dews, and summer rains and winter snows—which they distribute by gradual processes for the benefit of the open fields.

If not for their beauty, as the “verdurous crown of the landscape,” the owner of land should preserve some portions of woods—if woods he has—for his fields, and for the earth’s sake. If he does not, his glebe will be sultry, and he will have dearth in a four-fold sense; dearth of the fairest of nature’s beauties—dearth of shade, so refreshing to man and beast—dearth of music of birds, for the birds flee the barren treeless spaces—and dearth of electricity and moisture, upon which all that he cultivates from the bosom of the earth most depends. How many a rocky hill is shorn of that which gave it pomp and fed the valley with sparkling rills, and left forever after an ugly and accusing monument. Let man be driven for a period to some shadeless, springless desert—over which even the clouds and lightnings hurry with unwonted speed, as if to shun the place—and he would return to woodland with a reverence for trees, as one of God’s greatest beauties.

The woodlands of America are peculiarly rich in varieties of forest trees; tall pines, fit for the flag-ship of an admiral; hemlocks, with their dense and drooping evergreen branches; royal oaks, stately and umbrageous; graceful and flickering birches; verdant walnuts, with their straight trunks and glossy leaves; chestnuts, useful and ornamental; the exquisite magnolias, and tulip trees, and a hundred others that we have not space to name, make the hills of our land of promise glorious and goodly to behold. Yet war to the knife has been declared upon these unhappy trees, and even the present generation regard them with hereditary rancor. Trees were the sturdiest enemies of civilization the early settlers had to contend with. They served as a shelter for the savage foe, and the not less savage wild beast; their extermination imposed the severest labor on the husbandman, who went into the woodland with his axe in his hand, and his rifle on his back; and a man’s enterprise and wealth were measured by the extent of his clearings.

The spirit has survived the exigency that prompted and excused it, and some people seem to have a spite against the trees, and would go many miles out of their way to chop one down, as John Randolph said

he would kick a sheep! But this feeling is fast becoming extinct; especially in the neighborhood of cities, where trees are such rarities; a truer spirit is now awakened, and almost every rural town—good taste be thanked!—has its “Tree Society.”

The Japanese have a custom uniformly observed among them, by which every man leaves on his grounds as many trees as he finds. It is the law in Japan that no fir or Cypress tree can be cut down without the permission of a magistrate, and for every full grown tree that is felled a sapling must be planted. A French paper says that at Thouseth, the Cure, who is now nearly eighty years of age, has always insisted for the last thirty years, that the parents of every child he baptized should plant a fruit tree of some kind or other. The result is that this commons, which was formerly very unproductive, now presents the appearance of an immense orchard.

Planting Trees.—Instead of the many formal, stiff lines that are common in walks, there should be exhibited more of the elegant, easy, flowing lines, which render so much of grace to a charming landscape.

Trees and shrubbery, if set out in the fall, get nearly a year's start of those delayed until spring; and in planting do not set them in lines and squares, but form them in clusters, or elegant groups, about your grounds.

Care and taste are quite necessary in grouping trees. Plant in groups of three, four, or half a dozen; intermingling the maple, the evergreen, and the elm.

Be careful that the trees you select, and the forms you create, in a manner harmonize with the style of architecture of your house, caring too that they hide from view some ungainly object in the adjoining landscape.

An uneven wavy surface of ground, is preferable to a dead level, because in it there is more variety, and consequently more beauty.

Easy and sweeping curves of line, whether of road, ridge, walk or drive, are much more beautiful than straight lines. Stiffness mars a landscape.

Before commencing your labors, just map the whole picture in your mind.

The best Shade Trees and Trees for Lawns.—Maple, elm, horse chestnut, mountain ash, chestnut, black walnut, oak, ash, magnolia, tulip-tree, ptelea, catalpa, larch, &c., and such evergreens as Norway spruce, Austrian pine, Scotch pine, white pine, balsam fir, and white and black spruce, are all good. For the beginner, we would say, plant at first, native, well-known, hardy trees. These will include, gener

ally, the white elm; the rock maple, silver, red and black maple; the white ash, the white oak, chestnut, and perhaps a few others. To these, we would add a few evergreens, such as white pine, balsam fir, black and white spruce, and arbor vitæ. Then we would go on with the Norway maple; English, Scotch and Dutch elms; Scotch larch, European mountain ash, Norway spruce, Siberian arbor vitæ, and a few other foreign evergreens.

The maple is one of the best shade trees for city growth as well as for the country. It is not affected a particle by the extremes of heat and cold. It forms a beautiful head, with clean, glossy foliage, smooth bark, is free from all insects, and has a rapid growth. In five years in a good soil, it makes a fine symmetrical head, with gracefully sweeping branches, and affords a dense shade. The American tulip tree is also very choice. Its great elegance of habit, and striking beauty of leaf and blossom, recommend it to any one who has an eye to fine proportions. It requires a deep soil, with plenty of room to expand freely on all sides. It will not bear removing when large; but small trees grow rapidly when transplanted into a deep soil.

Evergreen Shrubs.—Those who have small grounds, should confine their plantings of evergreens exclusively to the small species and varieties, if they would avoid having everything else overshadowed. Among some of these may be named the dwarf white spruce, which grows only four or five feet high; the several varieties of juniper, and the bay silver fir. There are several dwarf varieties of the Norway spruce, which grow only a few feet high. The *pinus pumila*, or dwarf Scotch pine, forms a broad, dense mass of dark leaves, never grows over ten or twelve feet high.

Transplanting Evergreens.—Transplant just as they commence growing in the spring, or else in February. May and June are probably the best months of the year. Dig the trees very carefully. Prefer those under three feet in height. Immediately place them in a coarse cloth thoroughly wetted, keeping it so until they are placed in the ground again. If the tree is large, select a time when the ground is frozen, and take up as large a block of frozen earth as you can. Move carefully.

Pruning Evergreens.—A gardener, in an English journal, referring to pruning evergreens, whether hedges or otherwise, gives the following advice: There is a natural law about cutting in the boughs of all kinds of evergreens, which can never be departed from, in a single instance, without doing more or less harm in the long run. It is this: that the lowest boughs all round the bottom of a tree or bush be left

longer than those above them, if only the fraction of an inch ; and the rule holds good from bottom boughs to the topmost ones, even of a Wellingtonia. The reason for the rule is this : if the boughs or branches in any part of the tree or bush are allowed to get longer than those below them, the longest will throw off the drops when it rains, and shade them from the sun ; and when the sun and rain are kept from an evergreen bough, it soon languishes and dies by inches. That this is the only reason why laurels and fir trees, and all the rest of them, get naked below. People allow the top branches to spread over the bottom ones. Now, any one who understands that law, and acts on it, can never go wrong in managing a hedge or tree.

Transplanting Trees and Shrubs.—We are often asked, "What is the best time to transplant trees and shrubs?" To all such questioners we would say : if your soil is well drained and in good heart, it may be done in November, with the single exception of evergreens. But if the soil is not well drained, don't set out a single tree or shrub until it is. Before planting, plow the soil deep, using a sub-soil plow ; and be sure it has not been exhausted by former crops. Trees need food equally with any other crop, and suffer more from the want of it than any other. A coating of fresh manure applied just before planting, is worse than useless. Don't dig your holes very deep, but be sure and make them wide enough, so that every root may be placed in its natural position, with plenty of space to spare. If you will plant in wet ground, set the roots on the surface, and heap the soil over them, but all such cases should be left until spring. The great secret of successful planting, is to obtain plants with good roots that have never been allowed to get dry, filling in carefully around every rootlet with the hand, so that no empty space is left, using mellow soil alone for this purpose, without any manure ; and putting the young trees very little or no deeper in the ground than they were in the nursery. Grape vines may be treated a little differently in regard to depth of setting. If the roots and branches are dry, or partially so, when received, bury all in the ground for two or three weeks ; this will often save them. Trees or shrubs that are liable to winter-kill, should not be transplanted until spring, and many prefer spring to fall planting. Spring transplanted plants are full of sap, and consequently get a good start, but this is of less account than doing the work well.

Lime in Transplanting Trees.—An English publication says that a large plantation of trees has been formed in that country, within a few years past, without the loss of a single tree, by putting a small quantity of lime in the hole when planting the tree. Four bushels of lime

are said to be sufficient for an acre. The lime is thoroughly mixed with the soil, in order that it may be reached by the roots with equal facility in every direction, as its principal effect is to push forward the tree during the first precarious stages of its growth.

To Transplant Nut-Bearing Trees.—Cut the long tap root about a foot below the surface a year before transplanting. This causes numerous fibrous roots to be thrown out, and the tree may afterwards be removed with but little risk of injury.

Removing Large Trees.—Dig a trench around at a distance from the tree—depending on the size of the tree—and leave the mass of earth to freeze. When frozen the earth may be taken out from beneath, and the large roots clipped, when with a strong rope attached to the top it may be overturned and transferred to the desired location on a stone-boat or sled.

Culture of the Locust.—A writer says the locust tree grows in twenty years to a goodly size. Its use in ship-building, for fence posts, as well as for manifold purposes in the arts and manufactures, is rendering it every year more and more valuable as an article of commerce, and it already commands a high price. An acre of locusts of fifteen years' growth will bring \$800 to \$1000; of twenty years' growth \$1500, without the labor of cutting and carrying to market.

Planting Locust Seeds.—The best treatment of locust seed to insure a speedy germination, is to gather the seed as soon as ripe in the fall, shell them and put them in a box of sand, keep the sand moist and exposed to the weather until spring, then sift the sand out, and plant in April, about the usual time of planting corn. When seed are not procured in time to adopt this method, take them at the proper time of planting, pour hot (not boiling) water on them: let them stand in the water in a warm place for several days, changing the water every second day, when some of the seed will become considerably swollen, these should be picked out and planted; let the others remain in the water until the shell becomes soaked and the kernel swollen, and plant as before. With this treatment they will grow as readily as Indian corn. Plant first in nursery rows, putting the seed six inches apart, and the rows four feet asunder, and transplant the first or second spring following.

Planting a Walnut Grove.—Plant the nuts in the fall about two inches deep, and if not too close together and they are well taken care of, in six or seven years they will commence bearing. Keep the weeds down and the stock from them, and in a few years you will have a beautiful grove, and valuable both for the timber and the nuts.

Wind-Breaks.—Says the editor of the *American Agriculturist*: A protecting hedge of some fast-growing tree is of great service, especially in districts where high winds prevail. The soft maple, silver poplar, Ailanthus, and white willow are quick-growing deciduous trees for this purpose. The Norway spruce, white pine and arbor vitæ are the most rapidly growing evergreens.

Botanic Names of Trees.—The following list of botanical names of some of our most common trees will be found useful to all readers. Those with an asterisk (*) are foreign; the others are natives of the United States and Canada:

Common Name.	Botanic Name.
Norway Spruce, ...	*Abies excelsa.
Balsam Fir, ...	Abies balsamea.
Hemlock Spruce, ...	Abies Canadensis.
Black Spruce, ...	Abies nigra.
False Sycamore, ...	*Acer pseudo platanus.
Sugar Maple, ...	Acer saccharinum.
Silver Maple, ...	Acer dasycarpum.
Ailanthus, ...	*Ailantus glandulosa.
Weeping Birch, ...	*Betula alba pendula.
Spanish Chestnut, ...	Castanea vesca.
American Chestnut, ...	Castanea vesca Americana.
Catalpa, ...	Catalpa syringifolia.
White Hickory, ...	Carya alba.
Cedar of Lebanon, ...	*Cedrus Libani.
Indian Cedar, ...	*Cedrus deodora.
Wild Cherry, ...	Cerasus Virginiana.
Laburnum, ...	Cytisus laburnum.
Persimmon, ...	Diospyras Virginiana.
Copper-Leaved Beech, ...	*Fagus sylvatica cuprea.
Purple-Leaved Beech, ...	*Fagus sylvatica purpurea.
Weeping Ash, ...	*Fraxinus excelsior pendula.
European Holly, ...	*Ilex aquifolium.
English Walnut, ...	*Juglans regia.
Black Walnut, ...	Juglans nigra.
Scotch Larch, ...	*Larix Europea.
Large-Flowered Magnolia, ...	Magnolia grandiflora.
Glaucus-Leaved Magnolia, ...	Magnolia glauca.
Great-Leaved Magnolia, ...	Magnolia macrophylla.
Cucumber Tree, ...	Magnolia acuminata.
Chinese Magnolia, ...	*Magnolia conspicua.
White Mulberry, ...	*Morus alba.
Black Mulberry, ...	*Morus nigra.
Chinese Mulberry, ...	*Morus alba sinensis.
Pine, ...	Pinus.
Imperial Paulownia, ...	*Paulownia imperialis.
Mountain Ash, ...	*Pyrus aucuparia.
Abele Tree, ...	*Populus alba.
Buttonwood, ...	Platanus occidentalis
Oak, ...	Quercus.
Common Willow, ...	Salix alba.
Weeping Willow, ...	*Salix Babylonica.
Linden, ...	*Tilia Europes.
Yew, ...	*Taxus baccata.
Chinese Arbor Vitæ, ...	*Thuja orientalis.
American Arbor Vitæ, ...	Thuja occidentalis.
English Elm, ...	*Ulmus campestris.
Dutch Elm, ...	*Ulmus c. major.
American Elm, ...	Ulmus Americana.
Weeping Elm, ...	Ulmus A. pendula.
Slippery Elm, ...	Ulmus A. pulva.

Lawns.—There is nothing—not even expensive statuary, flowers and shrubbery—that adds so much to the surrounding embellishments of a farmhouse or suburban residence, as green grass upon a well-kept lawn, and it is a beauty that is permanent and inexpensive. If the ground is well under-drained and the grass well dressed in the fall, it will start fresh as soon as the snow is off, and often earlier, and it keeps green through the most severe drouth upon ground that has been well prepared. With here and there a shade, what a lovely sight it is to see children playing upon a smooth lawn. With what glee they run from tree to tree, the old dog joining with great satisfaction in the sport. In spring, in summer, in autumn, the lawn is beautiful, and even in winter it speaks of refinement of the resident occupants. It tells too of the art and industry in man, since lawns are seldom if ever found in a natural state. The sea of grass upon the western prairies is only beautiful when seen at a distance. It does not bear close inspection like the velvety sod of a lawn.

Whenever we see a lawn turning brown in summer, we know that it was neither trenched with the spade, nor subsoil plowed, without which manuring will not always preserve its perpetual green.

Those who build country houses are too apt to expend their means upon a grand mansion, expensive out-buildings, ornamental fences, fine carriages and horses, and sometimes gaudy inappropriate furniture, which is all unsatisfactory, for the grand house, though embowered in trees, has no grassy lawn.

Seeding a Lawn.—A small lawn may be covered with sods—a large one must have the sod formed upon it. Two quarts of white clover seed mixed with a bushel of the chaffy seed of redtop, and sown evenly upon the third of an acre of well prepared ground, will form a fine lawn turf. Some add a little seed of the vernal or sweet-scented grass, that is so fragrant in new-mown hay. To make the ground perfectly level and smooth, if the space is small, rake it carefully—if it is large, use the roller.

Sodding a Lawn.—Prepare the ground as smooth as possible, after having worked it deep and finely pulverized, and then go with your barrow, if the distance is short, to the spot where you will cut your turf. If far distant, of course a cart must be used to haul home the load. If less distant, an ox sled will be found more convenient. In cutting sods do not take them up by the spade-full, but stretch a line and cut through the sod with a sharp spade. If much is to be cut, it would be better to do it with a plow-coulter ground sharp and set in a beam with handles, and gauged to the right depth. An implement

could be made with but little expense, that would cut the edges and bottom all at once. If cut with a spade, line off the courses exactly a foot wide, and cut the sod evenly one and a half inches thick, and roll up a course upon a handspike as big as two men can carry to the vehicle that is to transport it, and carry the roll in the same way to the ground prepared for your lawn and unroll just as you would a carpet. Afterward use the roller or something to compact the sods down firmly in place.

Clipping the Lawn.—More persons fail in the care of than in the making of a lawn. They cannot see the necessity of the frequent clippings, without which they cannot have a good lawn turf. One has only to look at the sod of a once-a-year clipped mowing field, and compare that with a closely-grazed pasture or roadside sod, and see which is preferable for a lawn. Let it be set down as a rule that a lawn cannot be clipped too often, and that it must be clipped twice a month, and that it will improve the sod to roll it as frequently. If there is grass enough so they would not wear it out, a troop of playful children upon the lawn every day would make the sod grow thick and firm, and the grass fine and soft. It is a good thing for a lawn to go over it every spring in a rainy day and scatter grass seed wherever there is the least show of bare ground.

Watering and Manuring the Lawn.—If you have a hydrant, have a long hose with a showering muzzle, and use it often in dry weather. Otherwise, you must, if you desire to see your grass always green, water by hand, or with a watering cart or garden engine. It will greatly add to the advantage of watering, if you will dissolve some fertilizing substance in the water, a few pounds to a hogshead full. You may use guano, salt, niter, lime, potash and several other ingredients. If there are grubs in the sod, salt them to death. Carbonate, phosphate, or sulphate of lime may all be used at times to advantage on a lawn, sowed on in moderate quantity. A dressing of well decomposed compost is the only manure that should be applied, and that in the fall or early spring.

Planting Lawn Trees.—We beg of you not to plant in rows nor any form of mathematical precision. Follow nature—go to the woods for pattern, or rather to some natural park, like the bur-oak groves of Michigan and Indiana. Keep in view “what for?” every time you set a tree. The object is either ornament or shade—it is not to fill up. Keep also in view the fact that the tree you are planting is to grow. It requires a combination of skill, taste, judgment, forethought, that

few persons possess, to plant the trees in a lawn, great or small—from a door yard to a royal park.

The great thing to remember is this—a short green grass and compact sod, is the leading beauty of a lawn or park, and trees and flowers are only thrown in to fill up or hide ugly spots, or break the uniformity, or furnish agreeable shade. Make everything—grass, trees, flowers, rocks, water, walls, fences, to look as natural, and just as little artificial as possible, and your lawns will excite admiration in strangers and satisfaction in yourself.

THE CULTURE OF ORCHARD FRUITS.

Fruit as a Medicine.—Ripe fruit is the medicine of nature. Nothing could be more wholesome for man or child; and although green fruit is, of course, almost as fatal as so much poison, the ripe is fully as thorough a health restorative and health preserver. Strawberries are a favorite with all classes, and constitute a popular luxury. But who can compute the amount of general health promoted by this relish for strawberries? Who can imagine how many pills that relish hrows out of the market; or, in other words, to what extent these pills prepared by Mother Nature, and sugar coated, as it were, to render them more palatable, crowd out of use those prepared by the chemist and the apothecary? Who can tell the number of disordered livers, deranged stomachs, and afflictive digestive apparatus generally, the grateful acid of that delicious fruit gradually restores to a sound condition, mocking at all the skill of the ablest physician, vindicating the simple laws of Hygeia by their radical action, and teaching us how often a panacea for some of the most painful of human maladies lies directly at our feet, and is condemned because it is so unassuming? After strawberries, we do homage especially to peaches and apples. They are the kind of drugs that cost comparatively little and do comparatively much, when the patient is not too far gone for the use of such pleasant medicaments. We knew a person once, who believing himself in a decline, and having been completely worn out in patience by the experiments of his doctors, determined to eat from four to six ripe apples every day, and note the result. In three months he was well! We know of another, who, without being afflicted with any particular disorder, was never in good health, and for twenty-five years could scarcely be said to enjoy a single week's exemption from

suffering. He then commenced the habit of drinking a glass of plain cider every morning, and for the next twenty-five years never had a single day's illness. Such remedies are simple enough!

Planting Fruit Trees.—Henry C. Vail, of Sing Sing, N. Y., urges the planters of orchards to be more careful in preparing the soil and planting trees. The want of success in growing fruits is more frequently traced to negligence in this department than any other cause. A tree is a vitalized body, possessed of delicate organs. By means of these organs the tree is enabled to build itself up from the food to be found in the soil and the air, also to perfect its fruit. Study the habits of your trees, and give them all they require; but of one thing do not lose sight—all fruit trees of value require a loose, deep soil, free from excessive quantities of water and well supplied with mineral food. Is your soil wet? Drain it deeply. Is it compact? Loosen it with a plow as deeply as possible, and follow in the bottom of the furrow with the lifting sub-soil plow, if in a field; if in a garden, trench the soil deeply throughout the whole plot. Is it poor in vegetable manure? Supply none but those well decomposed—such as woods' mold, muck, compost, rich road scrapings and with a rake mixing it with the soil, adding a small quantity of fine barn yard manure.

When the soil has been thus prepared, a little larger than the space occupied by the spread roots of the tree, will answer. Place the tree no deeper than it grew in the nursery, unless it be a pear one, quince stock, when it should be left so as to entirely cover the quince with soil. None but the best soil should be put under or about the roots. No plaster, ashes, phosphates, or guano, should touch them. No fermenting manures of any kind should be allowed under the tree to injure its roots by the escape of gases. Sprinkle fine soil on the roots while the tree is held still, regulating it as necessary to secure the natural position. In all but heavy clay soils, pour a pail of water over the loose earth and allow it to settle away among the fine rootlets. Don't churn the tree up and down in the hole. *Don't trample on the earth with your feet leaving great spaces in which no soil finds its way. Don't throw in clumps of earth or stones.* Fill up the hole carefully, keeping away grass and sods; cover a wide space around the tree with coarse litter, leaves, salt, hay, and dust, tan bark, or stones loosely piled around. These will shade the soil, keep in moisture, and enable you to water the tree without forming a thick crust on the top of the soil or packing it down too closely.

Should you be unable to subsoil or trench all your land, dig wide and deep holes, leaving out all the subsoil, returning nothing but surface soil, and proceeding as before. For large trees use strong, limber

stakes, to which they should be attached by soft ties of willow or straw. Trees thus carefully set, will grow and reward the planter.

All newly planted trees require to be kept hoed around, or the ground covered with a mulch of fresh mown grass, tan bark, etc., during the first summer, and should have it continued for years. The extra growth will more than repay the expense. When not done, in ordinary seasons, instead of obtaining a vigorous growth many will die.

For Propagating Trees and Plants by Cuttings.—Apples, pears, plums, apricots, &c., roses and other plants easy to live. Put the whole cutting in the ground, bent in the form of a bow, with the center part up, and just on a level with the surface; at which point there must be a good bud or shoot, which is the only part exposed to the air; the other, being protected by the earth from drying up, supports and gives vigor to the bud, which starts directly into leaf, and in its turn helps the cutting to form roots, and the whole even forms a thriving tree. The method of setting them is to form two drills about three inches apart, with a sharp ridge between, over which bend the cutting and stick an end in each drill, and cover up and press the earth firmly, and water freely. Cuttings should be of the last year's growth fresh and vigorous. Out of a hundred cuttings put out in June, not one but was thriving in August in the open air, without shade or extra care, except watering a few times soon after they were planted.

The Apple.—The apple is universally and justly admitted to be the most important of all fruits. Its hardiness, productiveness, ease of culture, and long continuance—and the facility with which it is kept and ripened—all concur to place it first in general value.

Early Care of Fruit Trees.—The following sensible hints are from a writer in the *Boston Cultivator*: The first eight years of the life of a fruit tree are the most important, and require judicious management. If a good compact head is formed in this period, it will need comparatively little pruning afterward. The wood is of the first consequence in these years, and fruit should be steadily sacrificed for the future good of the tree. Apply the knife above and the compost below and keep the heads as much in a pyramidal shape as possible. In due time you will have abundant fruit and limbs strong enough to hold it.

Fruit or Wood.—There are two principles in fruit trees; the growth of fruit and the growth of wood. It is the fruit grower's business, says the *Valley Farmer*, to attend to these and see that they are properly directed. It is in his power to divert the growth as he wishes.

He has the reins of the sap, so to speak, in his hands. It is his business when the tree is young to grow all the wood he can. But when the time for bearing has come, (and that may come early,) he must give the reins a turn, and direct the reins of the tree to growing fruit. To this end, he is to pinch off the tips of his main shoots, of all the shoots, if he wishes a general and generous bearing. This will have a tendency to develop fruit spurs; the tree's attention is directed towards maternity. Next year there will be a prospect of fruit, if the thing is not prematurely done; a tree cannot bear before it is fit to bear.

To Obtain Fruit in New Places.—The quickest return is from planting strawberries. Muskmelons and watermelons will yield their delicious products four months after planting. Good sized plants of gooseberries, currants, raspberries, and blackberries, will bear the second year. Dwarf pears of the right sorts, and under the right management, come quickly into bearing—some the second year. Grapes afford fruit soon—usually beginning to bear the second and third year. Of dwarf apples half a peck per tree is often obtained the third year from the most profitable sorts.

Fruit Trees Near Barn Yards.—We have known peach trees to grow four feet in a year when planted on the margin of a barnyard, and others every way else alike, away from the barnyard, but eight inches. Fine crops of peaches and apples may be had by setting trees around such yards.

How to Produce Large Fruit.—We find the following curious statement in *Emery's Journal*, and think it well worth a trial: By a very simple and easy process, fruits of many kinds may be raised about one-third larger than is usually the case, and of greatly improved quality. The secret consists in supporting the fruits so that they shall not be allowed to hang their whole weight upon the stock, or twist about in the wind. The writer states that when fruit is allowed to hang naturally upon the stock, the increasing weight strains the stem or twig, and thus lessens the quantity of nutritious food flowing to the fruit, which may be supported either by tying it to a branch with a piece of string or by inclosing it in a small net. Flowers, such as dahlias or peonies, may also be rendered much larger by the adoption of this system.

Orchards in Grass.—No man living, says Judge French, can show a good orchard of grafted fruit which was kept in grass the first ten years of its life. It is a point settled beyond controversy, that orch-

ards, to be healthy and productive, must be cultivated most of the time.

Productiveness and Profit of Orchards.—Henry Ward Beecher says an acre of potatoes will not produce as much as the same area in orchard, with five times the labor.

To Prevent Dry Rot in Apple Trees.—A load of green manure from the barn-yard placed around the roots of each tree subject to "dry rot," has proved a sure specific against this destructive disease—says an experienced neighbor of mine. It should be applied in the fall or winter.

Renovating Old Apple Trees.—"Dig about and dung it," was the scriptural way of renewing barren trees. Success attends the same method now. Dig "about," certainly as far as the branches extend but do not dig too deep, or injure the roots unnecessarily. Stirring the surface soil frequently, is what they want. Try that, and you will be amazed at the renovation you work in old apple trees.

To Prevent Frost from Injuring Fruit Trees.—The Superintendent of the Missouri Blind Institution says he has proved by three years' satisfactory experimenting that by tying one end of a clothes line to the lower branch on one side of a tree, then throwing it over the top and across the middle of the tree and placing the other end in a tub of water—keeping it there during the whole time there is the least likelihood of a sudden frost after the buds first begin to swell in the spring—will invariably protect the fruit wholly from the effects of frost.

Barren Fruit Trees.—Occasionally pear and apple trees make strong and vigorous growth, year after year, but fail to set any fruit. Now is the time to compel them to form fruit buds. Dig a trench around the body of the tree one-third the diameter of the extending limbs cut the trench deep, cutting off every root; then fill in again. This cutting of the roots checks the upward flow of sap, and causes more of it, after being elaborated by the leaf, to be deposited in the buds and short branches, and next year spurs will be formed giving fruit without fail the following season.

How the Spaniards Secure an Abundance of Fruit.—When a Spaniard eats a peach or pear by the roadside, wherever he is, he digs a hole in the ground with his foot, and covers the seed. Consequently, all over Spain, by the roadsides and elsewhere, fruit in great abundance tempts the taste, and is ever free. Let this practice be imitated in our country, and the weary wanderer will be blest, and bless the hand that ministered to his comfort and joy. We are bound to leave

the world as good, or better, than we found it, and he is a selfish churl who basks under the shadow, and eats the fruit of trees which other hands have planted, if he will not also plant trees which shall yield fruit to coming generations.

Long-Keeping Apples.—Apples that are remarkably well covered with wax never fail to keep long and preserve a good flavor—whether they are summer, fall, or winter apples. My friend, Rev. Joseph Jones, of Berea, informs me that he raised on his farm some winter apples of this description which he kept without difficulty in considerable quantities until the fourth of July.

Stamping Fruit.—A German Journal publishes the following: At Vienna, for some time past, fruit dealers have sold peaches, pears, apples, apricots, etc., ornamented with armorial bearings, designs, initials and names. The impressions of these things are effected in a very simple manner. A fine fruit is selected at the moment it is beginning to ripen—that is, to take red color—and paper, in which the designs are neatly cut out, is affixed. After awhile the envelope is removed, and the part of the fruit which has been covered is brilliantly white.

Wash for Fruit Trees.—Dissolve one pound common sal soda in a gallon of water, and wash. Solon Robinson says, caustic soda wash is one of the best things we ever saw applied to a fruit tree. It will make the bark as smooth as if wax-polished. It leaves no harbor for insects under pieces of dead bark. He recommends to make it by heating the common sal soda red hot in any old iron vessel, and then making a ley of it—say about one pound of the salts to a gallon of water—and washing the trees with a brush. It is best to put it on in the spring. A piece of old stove pipe, battered up at one end, and stuck into one of the stove-holes answers very well to heat the soda. The wash should be too caustic to put your hands in.

Another Wash.—Mr. Carpenter, of New York, recommends soft soap as the very best material that can be used in spring as a tree wash. It should be manipulated into such a consistency that it can be put on like paint with a brush, first scraping off the loose bark. It makes the bark as smooth as willow twigs. Some wash twice a year with soap and water—one third soft-soap and two-thirds water.

Sulphate of Iron for Trees.—It is stated as a new discovery, that wonderful effects may be obtained by watering fruit trees and vegetables with a solution of sulphate of iron. Under this system beans will grow to nearly double the size, and will acquire a much more savory taste. The pear seems to be particularly well adapted to this treat-

ment. Old nails thrown into water and left to rust there, will impart to it all the necessary qualities for forcing vegetation as described.

To Destroy Caterpillars.—If the limbs are too high to be reached by the hand, take a pole and tie on a sponge saturated with coal oil, and brush them off with it. See article on Pests.

To Save Girdled Fruit Trees.---Trees girdled by rabbits, mice, &c., may be saved as follows: When the sap flows freely in the spring, take a keen knife, run it around the trunk of the tree above and below the wound, cutting to the hard wood, and peel the gnawed bark if any; when that has been done, take another piece of bark, just to fit and replace it; then spread a rag with grafting wax, and bind it so that the water cannot penetrate any part of the wounded trunk. When the tree is merely wounded, but not entirely girdled, heap up earth above the wounded part, or apply grafting wax warm enough to spread easily using a common paint brush, and pressing on to it white wrapping paper or cotton cloth, to keep the wax from running when the sun shines upon it, or, tie pieces of tarred waxed cloth tightly about the wounded part. A reliable remedy for connecting the upper and lower portions of the bark of fruit trees, separated by the gnawing of mice, &c., is to provide a number of young shoots or portions of the branches, and as they are wanted, sharpen them in the form of a wedge at each end, making them long enough to connect the upper and lower portions of the bark separated by gnawing. A chisel, the breadth of which is about equal to the diameter of the shoots, is then driven into the bark, (say half an inch from the gnawed edge,) both above and below, and the prepared or sharpened shoot is then firmly pressed at each end into the cut made by the chisel. This is easily done by first bending the shoot outwards at the middle, so as to allow each end to enter, and then crowding it in again. The place must be then well waxed. The edge of the chisel must be placed so as to make a horizontal line in the bark. When the shoot is placed in the cut thus made, some portion of the line between the bark and the wood in both tree and shoot, must necessarily coincide, and as a consequence, the two parts almost invariably adhere and grow together—there is scarcely a failure. To prevent girdled trees see article on Pests.

Pruning—When to Prune.—At a recent discussion by the Farmers Club, N. Y., it was agreed as the result of experience that the best time to prune is in the summer when the trees are growing. Trees pruned at that time heal more readily, and are less likely to be attacked by black blast, or otherwise injured, than if pruned in the winter. The *American Agriculturist* says the month of June is the best

time to prune. A sharp knife should always be used so as to make a clean cut. Cut to an *outside* or *inside* bud if you would contract or open the head of the tree. The upper bud, without accident, will grow and lengthen the limb. Geo. Hite, of Morrisiana, N. Y., is in favor of winter pruning, that is, after the greatest frost, and before the sap starts. In February, he says, is the best time certainly for pruning peach trees. If he had more trees than he could prune in February, he would go over some of them before that time.

The *New York Tribune* says, There never was a more certain truth uttered than the following words of the editor of *The New-England Farmer*, who is not only a practical farmer, but one who never does a thing without first answering the question, "What for?" to the satisfaction of his own reason, and therefore is more entitled to attention than a mere utterer of dogmatisms. He says: Never prune an apple tree in the months of March, April or May. All the borers in the world do not commit half the havoc in our orchards that the pruning-knife and saw do, applied at the wrong season of the year. In the spring the sap is abundant, thin and active, and where limbs are taken off it passes through the pores of the wood to the surface, and coming in contact with the atmosphere, becomes bitter and acrid, runs down the bark and poisons it, so that it is often killed quite into the wood. This is what causes most of the *black lines* so often seen upon apple trees, and which frequently cause their death. Mr. Carpenter, of New York, says, If it is to produce an increased growth of wood upon a tree, pruning may be done in autumn or early winter.

Preserving Grafts.—Pack them in sawdust from green hemlock or other moist timber. Sand skillfully used will answer, but if too dry absorbs too much moisture, and if too moist is more destructive still, and at best is injurious to the knife in grafting.

To Revive Dried Cions.—Mr. Carpenter says the very best way is to wrap them up in damp moss. In a few days the cions will revive and look fresh. Or they may be buried entirely in the earth for two or three weeks.

To Transmit Cions by Mail.—Dr. Parker, of Ithica, N. Y., says the only safe and proper way is to touch the ends with a thick solution of gum arabic and wrap them in dry paper. They should, when received, be packed in dry sand in a box, and buried about two feet deep on the north side of a building. The box should have an inclined top to shed the rain.

Grafting Wax.—Geo. H. Hite gives the following: Twenty-eight parts of Burgundy pitch; twenty-eight parts of common pine pitch;

fourteen parts tallow; sixteen parts beeswax; fourteen parts of yellow ochre. For large wounds put it on hot with a spatula.

Mr. Burgess gives this: Equal parts of mutton tallow and beeswax and W. S. Carpenter recommends two pounds of resin, one pound of tallow, one pound of beeswax, which he says adheres well, is pliable and easily worked, easily made, and not expensive.

Four pounds resin, two pounds tallow and one pound beeswax make a good and cheap grafting wax. These three ingredients are used in various proportions—sometimes in equal quantities—sometimes eight parts resin, and three each of tallow and beeswax, or eight parts resin, five of beeswax, three of tallow, &c. By using lard instead of tallow, as it is softer, more resin may be employed.

The following has been recommended: One pint linseed oil, three pounds resin, one pound beeswax—melt well, and pour into a vessel of water—grease the hands and pull until white.

Watson's Grafting Wax.—Melt together two parts of resin, two black pitch, one white turpentine, one tallow, one beeswax. Applied melted with a brush.

New Grafting Wax.—Take two ounces of common resin, melt it slow over a fire, being careful not to heat it so much as to make it throw off its spirit of turpentine. When it becomes clear as syrup, add a little less than an ounce of alcohol, and mix well and put in a bottle at once and cork tight. Alcohol is to be added sufficient to make the mixture liquid and keep it so, and when applied to trees it hardens at once and forms an air tight covering.

Lefort's Liquid Grafting Wax.—Until lately this formula has been kept secret, and the preparation sold at a high price. All who have used it speak of it as the best preparation for covering wounds in trees that has ever been invented. Good for all abrasions for the skin of trees or animals. It must be kept in a corked bottle and applied with a brush.

“Melt one pound of common resin over a gentle fire. Add to it an ounce of beef tallow and stir it well. Take it from the fire, let it cool down a little and then mix with it a tablespoonful of spirits of turpentine, and after that about seven ounces of very strong alcohol (95 per cent.) to be had at any druggist's store. The alcohol cools it down so rapidly that it will be necessary to put it again on the fire, stirring it constantly. Still the utmost care must be exercised to prevent the alcohol from getting inflamed. To avoid it, the best way is to remove the vessel from the fire, when the lump that may have been formed commences melting again. This must be continued till the whole is

homogeneous mass similar to honey. After a few days' exposure to the atmosphere in a thin coat, it assumes a whitish color, and becomes as hard as stone, being impervious to water and air."

Substitute for Grafting Wax.—Melt resin with alcohol in sufficient proportions to form a thick paste, and apply with a brush.

Wounded Fruit Trees.—The wounds may be covered thinly with any of the above preparations, or with a composition made by dissolving shellac in alcohol. Give the trees good culture so as to make them grow rapidly. The gum shellac dissolved in alcohol will immediately stop bleeding in grape vines, where pruning is delayed until the sap starts. The liquid is easily applied, and may be kept for years ready for use, if kept tightly corked in a bottle.

A Waterproof Varnish for Trees.—Melt seed-lac, or shellac, in a pot in a water bath like a common glue pot, and then saturate the lac with a solution of four parts of water to one part of spirits of ammonia. Let the mixture stand three or four hours in a warm place, and then put the pot again over the fire and add boiling water to it, stirring all the time until all is homogeneous.

To Prevent Fruit Trees from Splitting.—The editor of the *Agriculturist* directs that if there are crotches liable to split down under a heavy load of fruit or violent wind, take a vigorous shoot, in spring, and insert one end under the bark of the main stem and the other under the opposite branch. Tie the branches firmly together to prevent slipping apart in windy weather. Or if a growing sprout can be found near the right place, cut off the top and insert it under the bark of the opposite limb.

The *Prairie Farmer* says: Take a small limb on each fork, and clean them of leaves and lateral branches for most of their length, ring them carefully together and wind them round each other, from the main branch to the other. In twelve months they will have united and in two years the ends can be cut off.

Profitableness of Pear Culture.—W. Sharp, of Lockport, N. Y., states that several of his neighbors set out pear orchards six years ago, and none has received for them less than five hundred dollars per acre—some seven hundred dollars—and if every tree should now die, the investment was good. Others had lost largely by blight. Such orchards, set out years ago, had been neglected, and produced little. A person near Vicksburg, Miss., in 1859, sold from two hundred and fifty trees, occupying two and a half acres of land, fruit to the amount of five thousand dollars. That of a single tree sold for eighty dollars.

Best Varieties of Pears.—The Fruit Growers' Society of Western

New York recommend fourteen varieties in the following order: 1st, Bartlett; 2d, Angouleme; 3d, Louise Bonne; Sheldon, Lawrence, Doyenne d'Ete; 4th, Seckel, Belle Lucrative; 5th, Beurre Giffard, Beurre Aujou; 6th, Rostiezer, Flemish Beauty, Winter Nelis, 7th, Beurre Bosc.

Pears for Cold Regions.—The *Country Gentleman* recommends Orband's Summer, Beurre Giffard, for early varieties; Virgalieu and Flemish Beauty for Autumn pears; and Lawrence and Winter Nelis for late sorts.

Remedy for Pear Tree Blight.—Mrs. Weller Dean, of Rockport, Ohio, says that blight might not only be prevented in healthy trees, but might be successfully arrested, in many trees, after it had made considerable progress, by means of repeatedly washing the bodies of the trees with a saturated solution of sulphate of iron (copperas) at a time when the sap is in active circulation.

Ripening Pears.—It is the opinion of all pear culturists that the fruit should not be allowed to ripen on the trees. Indeed some varieties will not hold on until ripe, and if left to ripen on the ground they are nearly worthless. As a rule, all pears should be picked from the tree and ripened in a dry, cool room.

After picking, says Gen. S. M. Wade, place them in a cellar, or a place with a low temperature; keep them cool and dry, and as you wish them to ripen, take them up stairs into a higher temperature—say 65 to 80 degrees. Pears never get tender and buttery in a low temperature.

To illustrate the importance of the proper ripening of pears, a story was told at the late session of the American Pomological Society about a gentleman's buying a crop of the Winter Nelis of a neighboring farmer who said he had fed it to his hogs for thirty years. The gentleman bought the farmer's crop of pears, took them home, stored them in his cellar, piling potatoes over them. When ripened, he sent his farmer friend a half dozen of them, who was so pleased with their rich flavor that he soon came over to see Mr. P——, and get grafts of that new variety of pears he had sent him.

Where to Plant Peach Trees.—A peach grower writes as follows. After several years experience and close observation, the writer has found that those peach orchards planted upon an elevation having a height greater than the surrounding lands, produce a crop of fruit each year; while those planted in ravines or depressions, or on level land, usually fail, at least two years out of three.

The cause of this difference in fruiting, I think is this; upon eleva-

ted locations the winds are more constantly in action than in depressions and on level lands, and, in consequence, evaporation is carried on more rapidly, drying up the humidity there. Therefore, the frost does not penetrate the vital part of the bud or bloom. On the other hand, if water remains upon the buds, it congeals by only an ordinary frost, thus killing the fruit.

Some writers, I see, are recommending the planting of peach orchards on land closely and densely surrounded by heavy forest trees; my observation would dictate the reverse. The day previous to the severe frost of 22d of April, 1859, there was quite a quantity of rain fell in the morning; about twelve o'clock the wind commenced blowing quite severely, and continued until evening; upon land where it had free access among the boughs, the orchards bid fair to yield an ordinary crop; but in other localities, where the wind was obstructed in its motion by adjacent forests or hills, and the water left upon the buds, the crop is almost an entire failure.

Care of Peach Trees.—If small peach trees could be laid down and covered with earth during the cold weather, or if a tree could be enclosed in a case made of boards, and the interstices filled with straw, the proprietor would feel very certain of having a bountiful crop of peaches next year. In some instances, where the limbs are very low, they may be laid down and covered with earth, and kept there by placing large stones or blocks of wood upon them, after they have been covered with earth.

The treatment in Maryland, on a large scale, is as follows: They are carefully examined every year, and all worms or ova destroyed; shovelful of wood ashes is thrown around the roots every spring. When six years old, the soil is cautiously removed for about two feet round the trunk, so as to examine the root; a strong wash of lime and some salt is then applied to the top of the root at the trunk, and for eighteen inches above it; prior to the application of which the rough bark should be scraped off. The removed soil is left open for one week, then replaced in its former position.

A yearly examination for worms, a good soil, and careful cultivation are all that is necessary for the prosperity of the peach tree.

Peach Trees and Tansy.—A writer in the *New York Times* recommends the sowing of tansy about the roots of peach trees as a means of preserving them. He says he once saw a large peach tree which was more than forty years old, while several generations of similar trees in the same soil had passed away. This led to examination, and a bed of tansy was discovered about the trunk. It was naturally

inferred that the preservation of this tree to such a green old age was due to the presence of this plant. It was decided to try experiments on others, and, accordingly, a few of the roots were placed about each of the other trees on the premises, some of which gave signs of decay. Not only has it preserved for several years the sound trees, but renovated those that were unsound. The odor of the plant, he says, doubtless keeps off the insect enemies of this kind of tree, and it might have the same effect on others, such as the plum, apple and pear, as well as the elm, sycamore, and other ornamental trees.

Iron for Peach Trees.—Iron dust, or clearings from a machine-shop around peach trees are said to be very beneficial. The scales of iron that accumulate around the anvil of a blacksmithshop are more valuable than manure for peach trees. A shovelful put round a healthy peach tree will be very likely to keep it in good condition.

For the Curl in Peach Trees.—Scatter ashes around the trunks and sprinkle it over the foliage while wet with dew.

Nails in Peach Trees.—It is said that by driving nails into peach trees the ravages of the worms may be prevented. Experiments have been made, it is said, successfully by driving a ten-penny nail through the body as near the ground as possible, when the trees were about a year old. Driving half a dozen nails into the trunk has been recommended. A chemical writer on the subject says: The rusting of the iron by the sap evolves ammonia, which, as the sap rises, impregnates the foliage, and proves too severe a dose for the insects. Try it.

Pruning Peach Trees.—Cut back the previous year's growth one-half or one-third, in February or early spring.

How to Grow Peaches Every Year.—Procure your trees grafted upon the wild plum stock, says a correspondent of the *Ohio Cultivator*. The trees partake of the nature of the plum, being hardy and will never winter-kill, and putting out late in the spring, will never be injured by the frost, and it is a certain preventive against the workings of the peach-grub, while the natural lifetime of a tree is beyond that of our own; so you may depend upon peaches every year, and for a long period of time without the destructive and discouraging influences attending the growth of the common peach. They can be obtained for from fifty to seventy-five cents per tree, and you had better pay five times that amount than not to obtain them, and be certain of peaches every year. Try it, and our word for it, you will be satisfied with the result.

Peaches in Pots.—Mr. Pullen, of Hightstown, N. J., has been suc-

cessful in producing peaches as well as nectarines from potted trees under the hot house process. His peaches began to ripen the last of May, and brought him fifty cents apiece. He produces about two dozen per tree. The trees are taken one year after having been budded and placed in nine inch pots.

The next year they are moved to thirteen inch pots. They are pinched in during their growth so as to dwarf them. The head of the tree is started about eighteen inches high. He thinks they could thus be grown on a large scale with profit. The peaches are not quite so good flavor as those grown out doors, though the nectarines seem equally good.

To improve the quality of the peaches he places them out of doors a short time before ripening, when the weather is sufficiently warm. A house one hundred by fourteen feet will accomodate one hundred and fifty trees.

Plum Trees—Black Knot—Curculio.—When the black knot first makes its appearance, cut it off clean, and keep cutting. If this remedy is promptly applied it will be effectual. The *Ohio Farmer* says: A gentleman formerly connected with the coal oil business tells us that several years ago, in taking a lot of sample bottles of oil on a journey, he accidentally had a bottle broken, saturating the sawdust in which the bottles were packed. When he arrived at his stopping place, he put the dust at the foot of a plum tree, it being about the time of the blossoming of the plum trees. The result was watched, and it turned out that the curculio, which ravaged the other plum trees in the orchard, gave this one a wide berth, and the plums were saved to ripen.

The circumstance led to further experiments, with like favorable results. The sawdust thus saturated, which can be with the cheapest kind of coal oil, retains the odor for a long time, which is offensive to the fastidious taste of the little Turk. The borer, also, will not put his gimlet into the trunk of a tree which is encircled in this stuff.

The quince tree seems to have a constitutional fondness for salt. A top-dressing of two quarts of coarse salt every spring makes both foliage and fruit much more healthy.

Fruit Picker.—The editor of the *Agriculturist* says: Take a common bottle gourd; in the larger end cut a hole large enough to receive the fruit; cut off the smaller end so as to admit a wooden handle, which should have a shoulder to make a snug fit to the gourd. Make a hole through or a groove in the part of the handle entering the gourd, and pour melted lead into it to fasten the handle.

SMALL FRUITS OF GARDEN AND VINEYARD.

In families where garden fruits are used the most extensively, you will always find the greatest degree of health. Instead of producing summer complaints in the bowels, they are the very best preventives. Beside having some of them upon the table every meal while in season, you should preserve such quantities in sealed bottles or jars, that you can have them every day until strawberries are ripe in June.

Strawberries.—We suppose we need not offer arguments to any one who has ever grown strawberries in the garden, to prove that no other fruit or vegetable can be grown with greater profit, whether for sale or use. They are healthful because they are the first garden fruit, when nature craves just such sub-acid food as the strawberry, and if produced in such abundance, of the most choice varieties, that all the family can eat to their hearts' content, we are willing to guarantee that while strawberries are in season there will be very little occasion for calling in the doctor. Therefore for the promotion of health, wealth, and happiness, we urge farmers to pay more attention to their cultivation.

Planting and Cultivating Strawberries.—Nothing pays so well for what it costs as a bed of good strawberries. If they have had covering, we prefer not to work them much in the spring—do that after bearing. If thrown up by frost, reset carefully, or fill up with fresh soil. A mulching of tanbark, rotten wood, or rotten sawdust, will help to keep the weeds down, and retain the moisture.

If you have not a bed of good varieties, set one out immediately. Inferior varieties are dearer as a gift than good ones at the price they sell for. A bushel to the square rod is only an ordinary yield, when properly managed; we have picked over three bushels from a rod and a half of ground. They will grow on any good garden soil. In setting a new bed, spade the ground deep, pulverize well, put on *no fresh* stable manure, but if your soil is not rich, you may use some *thoroughly rotten*; use half a bushel of leached ashes to a rod. We set two rows fifteen or eighteen inches apart, the plants the same distance; then leave an alley two and a half or three feet wide; then two rows, same as before. Many set in rows two feet apart. We prefer the former, as it avoids tramping around each plant, and is equally convenient. A mulching will be advantageous; keep weeds down at all times. Wilson's Albany is the most popular sort. Its

good qualities are productiveness, size, and firm, juicy flesh. It is, however, *too acid* for the taste of many. The Triomphe de Gand is also a favorite.

There is a question with some as to whether it is better to keep strawberries in hills, or let them run in promiscuously and fill up the bed. Some contend that this latter mode of management is the best, as the plants act as a sort of mulching, and make it unnecessary to use tan and other substances for this purpose. Some contend also, that the fruit is kept cleaner by this method, and though it may not be so large, it will be more abundant and thus pay better. They say too, that this slovenly treatment saves time and trouble.

We are inclined to think it pays to take more pains and get the largest and finest fruit, and this is affected more surely by the hill system. You can manage the plants better, and keep in the stray runners which are apt to use up the forces of the plant, and prevent the formation of fruit stems. By clipping off the runners, the fruit stems push out near the collar of the plant, and the power is spent in producing berries of good size, instead of producing so many useless runners.

If the two systems were carefully tried side by side, and the result noted, we are sure the hills would have the preference.

If you intend your bed to cover all the earth set the plants a foot apart each way. Some plant in rows three feet apart, and the plants eight to twelve inches apart in the rows. Dr. Parker of Ithica, N. Y., says the great secret of the strawberry culture is to cut off all the runners, leaving not one in the bearing beds or grounds. He who is too indolent to cut off runners, better let strawberries alone.

There is no wrong season, when the plants are not bearing, to transplant strawberries. Perhaps the best time is after the old roots send out runners, and the first of them get well rooted. Then cut the connection with the old stool, and keep the new root from sending out runners until it becomes a strong root, and then, if your new bed is to be made in the same locality, take up the plants with a transplanting trowel, with all the dirt that will adhere, and lay them on boards and carry right to the spot where they are to be set, and put them in suitable holes scooped out with the trowel or hand, and they will keep on growing almost as freely as though they had not been removed. Keep the ground free of weeds, and frequently stirred between the plants till winter, and then cover with forest leaves, held in place by brush, or a little dirt scattered over. In the spring, rake the leaves off the plants, and leave them between the plants as a mulch. After fruit-

ing, the runners begin to put out. If your plan is to keep distinct hills, cut off all runners every week. If your plan is for rows, keep working between the rows, and turn the runners so as to form a growth of plants a foot wide, leaving a space for working two feet wide between. This is the best plan for field culture: working the beds by horse hoe. When the rows get grassy and need changing, run the subsoil plow deeply and repeatedly through the rows, and work in the necessary fertilizers, and prepare a new row of plants by setting or training runners to the right spots and let them set themselves, cutting away all the surplus ones. Then late in the fall the old row is to be completely turned under by the spade or plow, and so this system of renewal may be continued, turning down a portion of the old bed each year, and thus having vigorous plants always in full bearing.

Where the plants are set with the design of covering all the surface, the runners are permitted to spread where they will the first year, and the second year the poorest plants, old or young, should be cut out, so as not to allow the bed to become matted. When it begins to fail, from being overrun with weeds or grass, or from the plants becoming feeble from age, or want of room, divide it into strips two feet wide, and turn under alternate ones, and fertilize the ground for a new setting of plants to spread over it from runners, and when they are well established, turn over the other strips in the same way, and so continue. At every new preparation of the bed add ashes if you can, or bone-dust, or super phosphate of lime, or fine compost, in which rotted sods, leaves, and woods mold hold the greatest share, and then no other manuring will be necessary while the plants are in bearing, except the mulching of leaves, straw, or salt hay that you should give every winter. Where it can be had conveniently, always get spent tan-bark for mulching. Turners' chips are a very good substitute, and so are leather shavings. When any fine material is used for mulching, be careful not to smother the plants. Sawdust, and also scrapings from the wood-pile, may be used if care is had about smothering.

Covering the ground permanently with saw-log slabs has been practiced with good success. The plants were set in well prepared soil, in straight rows, one foot apart, and then slabs notched on the edge, about three inches deep, were fitted to the plants, so that they grew in bunches in holes about six inches wide, and of course free from weeds and grass. By this plan no new plants are made from runners. If such are desired, a bed must be kept for that purpose. The old stools of strawberry plants, after a few years, grow so much above the

surface that they are not productive. Hence the necessity of frequent renewals.

In transplanting strawberries in the same garden, or near where the plants are obtained, take up the plants with a trowel, when the ground is moist, with a good ball of earth adhering, and set them out immediately, and they will not stop growing. We have moved them so when budded, and they bloomed and bore fruit almost as well as though not transplanted. Never set the plants any deeper than they originally stood. Although we should always prefer new plants, yet it may be remembered that the art of transplanting old roots, even those that have become barren, causes them to send out newly bearing crowns, and so become fruitful again. It is also recommended by those who have proved its value, to hill up all stools with fresh earth, which has the effect to make them fruitful again.

Watering in a dry time is highly important. It will keep the plants in bearing twice as long as without it. Charles A. Peabody of (near) Columbus, Ga., has certainly been one of the most successful strawberry culturists in this country. He has carried berries to market more than six months of the year, and he obtained them by copious watering with a movable pump—a garden engine. He planted his beds upon sandy land, newly cleared of pine and oak timber, choosing a flat near a little brook, on account of convenience of water. He used no other fertilizer at first than what was obtained by burning the timber and brush, and scattering the ashes, and afterward by mulching with forest leaves. After the fruit season, his practice was to have a hand go through with a hoe and cut up the poorest looking plants, so as to keep them from getting too thick; and then the mulch being put on, the runners are prevented from setting, and are afterward cut away. He is careful to leave all the vines cut off on the ground, considering them the best fertilizer. This is true in regard to all kinds of plants. The ashes are the best manure for the same kind growing.

Soil and Fertilizers for Strawberries.—The best soil is that lately in forest, of a gravelly loam character, situated on a gentle south-eastern slope, and should be underdrained, spade trenched, or deeply subsoiled, and made rich and mellow before setting the plants. If underdrained thoroughly, it will soon pay the cost in extra productiveness. If possible, protect the north and west sides by high fences or hedge. The best manure is woods mold and unleached ashes, and what is known as the “lime and salt mixture”—that is a bushel of salt in just water enough to dissolve it—and that used to slake three bushels of lime. Shell lime is best. If land is parched with drouth, without ar-

tificial watering, the fruit will be deficient, though all other requisites are complete. All the fertilizers should be mixed in the soil before the plants are set. Twenty or thirty bushels of ashes, three bushels of salt, and nine of lime, may be used on an acre, and the more the soil is stirred in its preparation the better; and it should be as free of weeds and grass as possible.

When ready to set your plants, rake the bed smooth and mark off the rows, and procure strong-rooted plants, and dip the roots as you proceed in water thick with rich earth or compost, and set them no deeper than they naturally stood, being careful to cover with fine earth well pressed.

Rev. J. Knox's Method of Cultivating the Strawberry.—This gentleman devotes fifty acres at Pittsburgh, Pa., to this fruit. He recommends a rather light clay soil, thorough drainage, several plowings in several directions, until the ground is well broken up and pulverized to the depth of from twenty to twenty-four inches, which is sufficient for ten or twelve crops in succession; not much manure, well rotted stable manure only, any good wheat or corn land being good enough. Plant in rows thirty inches apart; keep the plants ten inches apart in the rows, making twenty thousand plants to the acre. Cultivate simply with the hoe, disturbing the soil after planting as little as possible. Never allow the vines to bear the first year after being planted; pick off all the fruit stems and runners, and remove the runners every year that the plant is fruited. Set out plants early in the spring; protect them in the winter by wheat or rye straw, threshed with the flail, two tons to the acre the first year, one ton of new each season thereafter. Remove the straw in the spring, and place it around the plants as a mulch. Varieties that succeed in some soils and situations fail in others. For general crop, "Wilson's Albany" and "*Triomphe de Gand*" are most profitable. The latter possess all excellencies desired—productive, beautiful, large, fine quality, bears shipping well, plants are hardy—not as productive as the former, but an acre will bring more money, and produces over three hundred bushels per acre; if the runners are kept off, will bear ten years. A good many crowns will start and cluster around the original plant, each bearing a fruit stem, and all producing a very large amount of fruit.

Sex of Strawberries.—It appears to be a settled question that there are three distinct forms among the blossoms of strawberries, and that two of them will not produce fruit, except by impregnation, one with the other. These are called male and female flowers; the male flower growing stamens without pistils, and the female flower pistils with-

out stamens. The other, called hermaphrodite, is furnished with both, and has the power of self-fertilization in each blossom. The female or pistillate flower has a golden center, the pistils covering it like short stiff hairs. The male or staminate flower has a dark center, from which grow a dozen or more stamens, which are little stems with knobs on the ends, which bear the pollen, that must come in contact with the pistils to fructify them. Some plants bear all staminate and some all pistillate flowers; and when that is the case, unless the two sorts grow in proximity, both will be nearly destitute of berries. It is often observed that strawberry blossoms are abundant in the fields, and fruit scarce. This is owing to the sexuality of flowers, and the lack of favorable circumstances to produce impregnation. The great scarcity of bees in many of the old States, cuts off one of the great means by which nature carries on the work of fecundation in flowers.

Some varieties of strawberries always produce hermaphrodite flowers, the center of which is like the pistillate with stamens growing around it, as they do from the center of the staminate flower. This kind of blossoms will produce fruit if there should be no other sort growing near.

Although a pistillate variety will not produce without the aid of staminate, if the two kinds are set together, the staminate will soon outgrow the others, and so take possession of the ground, that in three or four years the bed affords but a meagre supply of fruit. Great care therefore must be used in cultivating strawberries, not to let the barren, rapidly growing male plants overpower the female ones, which are the true fruit bearers.

To Hybridize Strawberries.—The *American Agriculturist* says: Cut out the stamens of the flowers to be fertilized, as soon as it opens, and then apply the pollen from the flower with which you wish to cross by means of a camel's hair pencil.

An Immense Strawberry Crop.—A prominent fruit grower of western New York, from a single patch of sixteen acres, sent to market in one year thirteen hundred bushels of strawberries. The entire crop was sold at an average price of twelve and a half cents per quart, realizing the snug sum of five thousand two hundred dollars. This may be taken as an instance of the profitableness of thoroughly scientific fruit growing.

Good strawberries can be raised by the bushel, says Orange Judd, cheaper than wheat. The space necessary to supply a family need not be large. We have averaged one quart to two and sixteen one-hundredths square feet, or at the rate of six hundred and thirty bushels

per acre. The *Ohio Farmer* says that if strawberries are well set in the fall, they will fruit the next season, as it is the fall growth of root which supports the plant for the next year's fruiting. J. J. Thome recommends in planting to make a little mound under the roots, and spread the roots evenly upon it, and then carefully cover them. Thus treated, they grow twice as well as when planted as they usually are. A writer says: The secret of success in raising the strawberry is watering it freely daily. Mr. Carpenter finds cornstalks a good covering for strawberries. Mr. Fuller says: Early Scarlet should be always grown in beds, Triomphe de Gand always in hills, and the runner kept trimmed off. Mr. Knox says: Strawberries do not injure grape vines when grown among them.

Cultivation of the Blackberry.—Soil.—The blackberry delights in rich, rather moist soil. It would be almost impossible to get a soil too rich. We have seen a portion of a blackberry patch receiving the wash of a barnyard, and the canes grew to an immense size, and produced the largest berries we have ever seen, while the quantity born was almost incredible.

Preparation of the Soil.—The soil should be deeply plowed and trench-plowed in the fall. By trench-plowing the soil is deepened and a portion of the subsoil is brought to the surface where it is subjected to the ameliorating influences of the frost, air and sun. In February or March the ground should be again plowed and the subsoil or lifting plow used, which breaks up the subsoil without bringing any of it to the surface. We are satisfied from our own experiment that this preparation of the soil will be amply rewarded by the increased amount of fruit produced.

Time and Manner of Planting.—The best season for planting the blackberry is autumn, if the soil is in a proper condition. The blackberry commences growth very early in the spring, and if disturbed at this period by transplanting is very liable to die. None of the small fruits so imperatively demand planting in the fall or very early in the spring. If the plants can be set out early in March, or in the first opening in spring, it will answer. But if the planting is delayed, it will be at a sacrifice of a large portion of the plants.

The plants should be set out in rows eight feet apart, and the plants should be set two feet apart in the row. Give the ground between the rows good deep culture the first season, and the second keep all the weeds down, not working deeply between the rows. Strawberries may be grown between the rows the first two years, if preferred. Let the plants come up thickly in the rows, but cut off with a hoe even with

the ground all suckers that come up between the rows, treating them as weeds. The plants coming up thickly in the rows form a kind of hedge, the canes mutually sustaining one another, thus rendering stakes and trellises and the trouble of tying unnecessary. We have practiced this system with great success, and those who have seen our patch in fruit say the yield was enormous. There is no care or labor required in training by this method. Those who go to the expense of procuring stakes and setting them, and tearing their flesh to pieces in tying up the canes, would avoid the trouble after trying the plan we recommend.

Pruning.—The only labor required by this method of treating the blackberry is in pruning. This is done in summer. When the plants send up canes four or five feet high, go over the patch with a corn-knife and cut off the tops of all the canes to the height of about four feet. This will cause them to throw out laterals upon which the fruit is produced. The plantation must be gone over several times during the season, as new canes are raising themselves and their tops must be cut off as before recommended. If the laterals get too rampant and in the way, as they will, they must be shortened in. The only implement required for this work is a corn-knife, and one man will prune several acres per day in this manner.

I would particularly recommend that after the plantation is established, the ground between the rows should not be disturbed. It will break the roots, and cause an immense amount of suckers to put forth and greatly weaken and lessen the productiveness of the bearing canes. The best plan is to spread a very heavy mulching of straw, or, what is better, coarse manure between the rows, thus keeping down the weeds, rendering the soil moist and enriching it at the same time.

At a meeting of the New York Farmers' Club, Dr. Ward described his plan of cultivating and training blackberries which we condense: The vines are planted in rows three feet apart, and three feet apart in the rows. Over each row is stretched a stout wire at the height of about four feet, with stakes at proper intervals to support it at this height. As the vines grow they are tied to the wire, and bent down along the wire all in the same direction—that is, all toward the south, all toward the north, or in such direction as may be most convenient.

The berries are grown on the wood of the previous year's growth. In the spring of each year, the bearing wood of the year before is cut out and removed, and the new shoots are tied to the wire, the lateral shoots of the new wood being at the same time cut back within a foot of the main stalk. Thus the whole labor of training the vines is per-

formed at one operation. It is better to manure in the fall, and this all-important matter should be attended to every year.

The *American Agriculturist* says: After the fruit is gathered, cut out the old canes. Allow two, or at most three canes to grow for next season. These should have been stopped when about six feet high. Remove all other shoots unless needed for new plantations.

Kinds of Blackberries Recommended for General Cultivation.—The Lawton, as the most productive, and most profitable for a market gardener, or for converting into wine. The parsley-leaved, as a very ornamental, trailing vine, and producing excellent fruit, ripening late in the season. The Dorchester, as a less rampant grower than the other two, and in some sections a more prolific bearer of excellent fruit. It is far better than the Lawton in Massachusetts.

Profitable Blackberry Yield.—The editor of the *Norwalk* (Conn. *Gazette*) states that George Seymour & Co., New Rochelle, in 1859, had three acres under cultivation which produced over four hundred bushels of blackberries, with a cultivation that cost eight dollars per acre and the blackberries when sold in New York, realized above expenses \$3200, or more than \$1000 per acre. Besides this, thirty barrels of blackberry wine, worth \$50 per barrel, were made from berries grown on the same lot, and there were plants enough for the sale of next spring to make the net yield of this small lot at least \$5000.

Raspberry Cultivation.—The profits of raspberry culture are considerable; the outlay is small; the annual expense trifling compared with some other crops. The return is almost immediate, since plants bear a good crop the second year, increasing the next, and continuing profitable for five or six years. Two thousand quarts (about sixty-two bushels) is a fair crop from an acre. Five hundred dollars has been received for the product of an acre. Treat the same as blackberries. Brinkle's Orange is the general favorite for family use, being very productive and fine flavored. The Fastolf and Franconia are both excellent sorts.

Cultivation of the Currant and Gooseberry.—A writer says: It is to be presumed that not one in a hundred understands the simple process of cultivating either currants or gooseberries, although it has been detailed in all the horticultural books with which the world abounds. Thousands of persons, with every appliance for success, are still content to live without a plentiful supply of these delicious, healthy, and cheap luxuries, merely because they have not thought of the matter. They have a few stunted bushes set in the grass, with three-fourths of the stocks dead, and then wonder why they do not bear in abundance.

There is not a more beautiful shrub growing than the currant, properly propagated; and the same may be said of the gooseberry. Cultivators who pay any attention to the subject, never allow the root to make but one stock, or, as the English say, "make them stand on one leg,"—thus forming a beautiful miniature tree.

To do this you must take sprouts of last year's growth, and cut out all the eyes, or buds, in the wood, leaving only two or three at the top; then push them about half the length of the cutting into mellow ground, where they will root, and run up a single stock, forming a beautiful symmetrical head. If you wish it higher, cut the eyes out again the second year. I have one six feet high. This places your fruit out of the way of hens, and prevents the gooseberry from mildeewing, which often happens when the fruit lies on or near the ground, and is shaded by a superabundance of leaves and sprouts. It changes an unsightly bush, which cumpers and disfigures your garden, into an ornamental dwarf tree. The fruit is larger, and ripens better, and will last on the bushes, by growing in perfection, until late in the fall. The mass of people suppose that the roots make out from the lower joints. It is not so—they start from between the bark and the wood, at the place where it was cut from the parent root.

Many excellent cultivators however prefer the bush form for growing currants. Its great advantage consists in the system of renewal which should be combined with it. Keep no old wood. Every branch that has grown three crops is cut away at the ground. When first planted cut the young bush away close to the ground, to induce several vigorous shoots, instead of one. Next spring shorten all these canes, and let the fruit grow below and new shoots above, and next spring shorten them again. When three crops have been borne upon any branch, cut it away to the ground the following spring. It is the secret of success. Plant four feet apart each way or four by five feet. When manure, plow and hoe them as you do Indian corn. The common red Dutch currant can in this manner be grown almost or quite as large as the cherry currant is ordinarily. Urine and soap-suds is an excellent application to the roots of currant bushes. Currants should remain on the bushes usually for some time after they have changed color before they are fully ripe.

Gooseberries need similar cultivation to the currant. The most popular native gooseberry is the Houghton Seedling. Of foreign varieties Crown Bob and Sheba Queen are considered the best. All gooseberries of foreign origin are much liable to mildew.

Grape Culture.—The preparation of the vine border is an impor-

tant process in grape culture in private gardens. It should be made from four to six feet wide, and two to three feet deep, and be composed of a liberal mixture of limestone, or old plaster or mortar, bones, leather parings, hair, ashes, and strong, well rotted manure, well mixed with the soil.

A calcareous soil or gravelly loam is the best for the grape, and should be well drained and warm. It is somewhat difficult in wet clay lands to raise good grapes, unless the vine border is carefully prepared. *Soap suds and wash from the house is favorable for the grape*, and we have known some plants succeed well that were placed immediately under the spout of the sink. For vineyard culture, the nearer the process approximates to the one described above by trenching and enriching, the better.

Every plant should be thoroughly pruned down to two or three leading shoots; and after these cover the trellis or stakes as extensively as you wish, then the rule in pruning is, every year from December to first of February, fearlessly to cut back all of the last year's growth, so far as to leave only two eyes. It is also desirable, after the grapes are beginning to fill in June, to pinch back the terminal bud on every branch, and thus check its growth, and throw back its sap, to ripen the fruit and mature the wood. By pinching back, we mean, to pinch off with the thumb nail and forefinger the end of every bearing branch, and we then cut out all the superfluous little shoots and suckers.

The vine is composed the greater part of potash, lime, and carbonic acid; therefore a frequent application of ashes, lime, and soapsuds, is beneficial.

What Soil is Best for Grape Growing.—Any good corn land is good for growing grapes. It must be kept mellow and in good order, and be well underdrained unless there is a good natural drainage. There is probably no better land for grapes than clay if well underdrained.

How to Grow Delaware and Other Grape Cuttings.—F. A. Fleming, of Curwensville, Pa., who has tested the plan, says: The first trial we made was with some thirty Concord cuttings of three eyes each. We took a box about two feet long, one foot wide, and twenty inches deep. We filled it half full of leaf mould, fresh from the woods, inserted the whole thirty cuttings in the box, with two eyes in the soil and one above; watered them well with warm rain water; tacked a piece of thin muslin on the top of the box, and set the box under an apple tree in the yard. It stood there without being watered until the middle of August, when I took the cover off to examine my grape cuttings, which I had planted in a "Poor Man's Cold Frame." Every

cutting had started, and the box was completely filled with a mass of stems and leaves of a strong growth. They had grown to the top of the box; some of the shoots had grown against the muslin, so much that I thought it best to leave the cover off. I watered them at that time, which was all the artificial watering they had during the entire summer after they were planted.

In the fall, I took them out of the box to transplant them. The soil in the box was one perfect mass of roots. Having such good success, I planted more the next spring in the same manner; also some single eyes. I tried some half dozen different varieties, over two hundred cuttings in all, and I did not lose half a dozen cuttings among all I planted. The Delaware grew as readily as any, but of course did not grow so strong and rampant.

Better vines we have never seen from any nursery. Plenty of good roots; strong stems of well ripened wood. We have since that time raised all the vines we wanted, at little or no expense except for the cuttings or eyes. We have raised a good many blackberry and raspberry plants in the same manner. The box should be narrow, and from ten to fifteen inches high above the top of the soil. Boot or shoe boxes, such as are found at the dry goods stores, will do, but we prefer to make our own. As far as our own experience goes, the plants do not need watering at all; but the cloth must not be oiled or varnished so as to prevent the plants having all the moisture they need. Flowers and plants which require to be started in a hot bed, we have tried in this manner, and they do well with or without bottom heat.

A similar method practiced by the Canterbury Shakers, is mentioned by Geo. Clark, one of their trustees, as follows: He says one of their brethren from a distant family in Ohio, told him to make the cuttings of three buds in length, and insert them in the usual way, early in the spring, in rich, mellow, rather moist, garden soil; then put up a row of shingles, by pushing one end of them four or five inches into the ground, on each side of the row of cuttings; then cover the whole with cotton cloth wide and long enough to hang down on each side and end, so as to shade the cuttings from the sun and keep the ground moist, and be sure and water them very often. He did so, and the result was almost all of the cuttings started and grew.

Every gardener will not have shingles to use in this way, but any old board, ten or twelve inches wide, put up on each side of the cuttings, will answer just as well as shingles, no doubt. Now this is nothing but "a cold frame," covered with cotton instead of glass; perhaps its quality lies in its being very narrow, and the covering of

plain cotton cloth, unprepared with varnish, &c. These were Delawares.

To Propagate Grape vines from Single Eyes in the Open Air.—We get our new fashions from Paris, and it is said that most of the new practical ideas of culture originate from the French. On looking through a file of French papers recently, we found the following “new idea,” which, as it must be new, when the French say it is, we translate for our readers’ benefit:

“The best way to propagate the grape vine, undoubtedly, is the system recently discovered by M. Fabvier, a celebrated vigneron, of the Haut Garronne. He selects the strongest of last year’s shoots as soon as the leaves fall in autumn, and cuts out the eyes, with about a quarter of an inch of wood above and below the bud, at that season. He then mixes an abundance of earth with them, and sets them in a cool cellar for the winter. As soon in the spring as the ground will work, he sets the buds two inches deep under ground, and about nine inches apart in the rows, covering the depth of two inches above the eye with very rich soil. The vines so produced are equal in strength to one year’s growth, to the strongest layers of the same age.”

Now, there does not seem to an American much novelty in raising grapes from eyes; nine-tenths of the grapes sold here being so raised; but there is for all a little novelty in successfully raising them this way in the open air. The trouble with us has been, that in open air attempts, we imitate our hothouse practice, and set the bud just level with the surface of the ground, and our warm summer sun soon settles that business. The buds dry out before the roots get deep enough to save them. We doubt if any American propagator thought of putting a bud two inches under ground, or dreamed if he did, that a bud would manage to push through that thickness of soil.

Perhaps they will. It is at any rate worth the trial. If really good one year vines can be had from eyes in the open ground, it will be a much cheaper way of raising grapes than that now generally followed; and the plants, without doubt, would be considerably healthier.

Grafting the Grape vine.—A correspondent of the *Country Gentleman* says: I have a Delaware graft, set one year last April, that I gathered one peck of grapes from this fall—one vine that was grafted two years last April, that I picked a bushel of Delaware grapes from this fall; the first was on a seedling root, the other on an Isabella root.

Method.—Remove the dirt from the vine for six inches in depth—cut it off four inches below the surface, and cleft-graft as you would

the apple—tie the scion to its place with strips of cotton factory, and press the dirt firmly about the stump and scion; and then fill in carefully to the second bud on the scion, covering with a little straw for mulching. During very dry weather it will want watering.

Any one who can graft an apple tree can graft a grape vine. The difference is that he must dig down about six inches for the stock to set his grape grafts.

The *Horticulturist* directs to saw off the stalk and put in the scion with two or three buds, wedge fashion, as in the cleft-grafting of fruit trees, and then cover up a few inches, leaving one or two buds above the ground. No clay or covering of the grafted part is necessary, beyond the natural soil, below which the graft is to be inserted. The sprouts of the old stalks, as they spring up to rob the graft, must be pulled off. Grafts often bear some fine clusters the first season of growth, and many more the second.

Pruning the Grape.—Many people suppose that it is necessary to cut out the leaves of the grape that shade the fruit. This is a serious error, as the leaves are required to perfect the fruit, and so long as the leaves can have the sun the fruit does not need it. The grapes under the most dense shade of grape leaves are as sweet, if not sweeter, than those more exposed. The ends of the shoots can be cut back but let the leaves alone.

To Stop the Bleeding of Recently Pruned Vines.—A little gum shellac dissolved in alcohol will immediately stop bleeding in grape vines, where pruning is delayed until the sap starts. A mixture in equal proportions of flour and salt, it is said, will have the desired effect when grafting wax and burning have failed. The *New England Farmer* says, Apply hard soap to the end.

Profits of Grape Growing.—The *Agriculturist* says: Grape vines occupying but a fraction of a square rod, often yield more profit than a whole acre of grain! Mr. Carpenter said before the Farmers' Club at New York, that ten tons—20,000 pounds—of grapes might be raised on one acre, and this, at fifteen cents per pound, would amount to \$3,000. It is stated in the *Scientific American* that a French proprietor lately paid four millions of francs for a tract of vineland where Medoc was the favorite wine, and he has realized the full amount of the purchase money from the crop of 1864 alone.

To Prevent Mildew on Grapes.—David Thomas, the late celebrated horticulturist, &c., said the grape never mildews when running over a living tree. Such is the fact. An Isabella grape vine has mildewed badly for several years. Two years ago I trained the vine over a

plum and also a pear tree that stood near. The fruit on that part that runs over the trees is all free from mildew, and truly fine, whilst on some of the lower branches the fruit is worthless.

American Wine Grapes.—Catawba, Delaware, Concord, Iowa, Alvey, Taylor, Oporto, Franklin, Creveling, Clinton, Diana.

Making Raisins.—Mr. Bugby, of California, has been very successful in making raisins. He makes a framework near the vineyard, over which he places laths, making a wicker frame. On this he lays straw paper. The grapes must be thoroughly ripe; they are gathered and laid on this paper; in ten days they are turned over; they will then flatten, and the work is done. The frames are protected from birds, bees, &c., by musketo bars. After they are thus cured, they are packed in large boxes between layers of papers for a brief time, then finally packed and sent to market. These raisins are much superior to imported fruit.

R. G. Pardee recently presented to the Farmers' Club, N. Y., some raisins made of Delaware grapes dried without any more care than drying other fruit.

The Fig.—Of all the fruits cultivated in the South, the fig requires the least care, and is one of the most productive and useful. South of the latitude of thirty-two degrees the fig tree produces three crops a year, commencing in May and bearing until November, but in Central Georgia, we generally gather but two crops a year, unless the season is peculiarly favorable, the first or early crop being often killed by spring frosts. The figs are mostly eaten directly from the tree, as soon as ripe, and may be found in abundance upon the breakfast table of all lovers of fine fruit. The fig tree grows very freely from cuttings planted early in the spring, and will sometimes bear the first year, generally the second. It has ever been a source of surprise to us that the fig is not extensively cultivated, and turned to more profitable account; but this is not the only instance in which the prodigal and generous gifts of nature are lavished upon man in vain,

CARE AND MANAGEMENT OF THE HORSE.

Points of a Good Horse.—In purchasing a good horse, sight, wind, feet and limbs must be the uppermost object of inquiry; for nine horses out of ten are defective in one of these particulars. First, then, examine his eyes, and do this before he comes out of the stable; see

that they are perfectly clear and transparent, and that the pupils or apples of the eye are exactly alike in size and color. Next, examine his pipes; if good and sound, on being nipped in the gullet, he will utter a sound like that from a bellows; but if his lungs are touched, and he is broken winded, he will give vent to a dry, husky, short cough; look to his limbs, also, and in passing your hand down his legs, if you find any unnatural protuberance, or puffiness, or if feeling first one leg, then the other, you discover any difference between them, disease more or less is present; he may not be lame, but he is not clean upon his legs. If he is broad and full between the eyes, he may be depended on as a horse of good sense, and capable of being trained to almost anything. If you want a gentle horse, get one with more or less white upon him; many suppose that the parti-colored horses belonging to circuses, shows, &c., are selected for their oddity; but it is on account of their docility and gentleness; in fact, the more kindly you treat horses, the better you will be treated by them in return.

In the *Sports and Pastimes of Merry England*, we find the following: A good horse should have fifteen properties and conditions, viz: Three of a man, three of a woman, three of a fox, three of a hare, and three of an ass. Of a man, bold, proud and hardy; of a woman, fair breasted, quick hearing and easy to move; of a fox, a fair tail, short ears and a good trot; of a hare, a clear eye, a dry head and a well-formed body; of an ass, a big chin, a flat leg and a good hoof.

The California Agricultural Society requires that a first premium *work horse* shall be between fifteen and sixteen hands; quick, lively ears; broad between the eyes; round barrel; short loins; well up in the shoulder; deep chested; square quarters; flat legs; short between the knee and pastern and hock and pastern; hind legs well under him; speed equal to eight miles an hour on the road, and at least three miles at the plow; with sufficient blood to insure spirit and endurance.

The *Ohio Cultivator* says: A horse weighing from 1,300 to 1,400 is large enough for a cart horse; 1,000 to 1,200 is large enough for a farmer's horse; from 1,000 to 1,100 is heavy enough for a carriage horse.

The points of merit in a farm horse, according to Mr. Strawn, the great stock farmer of Illinois, are these: A large eye, bay color, with heavy black mane and tail, round body, large ham-strings, short back, long belly, fifteen or sixteen hands in height, and weighing about 1,200 pounds.

Horse Raising.—The Arabs still stand at the head of stock-raisers,

even in the nineteenth century. With them we find that more stress is laid on the quality of the dam than the sire; that a first-class mare can not be bought from an Arab, since he knows by tradition what watchful experience is now teaching us.

The too general idea is that with a good sire, any mare is good enough to breed from. But experience shows that it is as impossible to get a good blooded colt from a poor mare as to make a mahogany table from a basswood sapling. The mother imparts to the foal size, strength and vigor of constitution—the father supplies spirit and muscle. Without the first, the last qualities are comparatively useless.

Age of Mares for Breeding.—It is quoted as the opinion of Col. Wm. R. Johnson, of Virginia, an old "Napoleon of the turf," that if raising a mare for breeding purposes, one should commence at two years old, if she were well grown, not for the value of the first colt, but for the extension of her breeding properties and enlarging her nursing capacities.

Treatment of Horses.—Horses repay humane and careful treatment. Give them luxury of shade and air, when practicable, during the heat of day. Use nets, or try a wash made by steeping walnut leaves, to keep off the tormenting flies. They will enjoy freedom in the pasture, nights.

The Arabians never beat their horses; they never cut their tails; they treat them gently; they speak to them, and seem to hold a discourse; they use them as friends; they never attempt to increase their speed by the whip, nor spur them but in cases of great necessity. They never fix them to a stake in the fields, but suffer them to pasture at large around their habitations; and they come running the moment they hear their master's voice. In consequence of such treatment, these animals become docile and tractable in the highest degree. The little boys and girls are often seen upon the body or neck of the mare, while the beasts continue inoffensive and harmless, permitting them to play and caress them without injury.

Taming Vicious Horses.—The secret for taming vicious horses is gentleness and patience, which remove fear and give the animal confidence in man. Rubbing a horse in the face will cause him to present his head to you, and talking kindly to him will attract his attention. After having cleared the stable of everything that will tend in any way to frighten the horse, drive him as gently as possible into a corner, and approach him by degrees, that he may see there is no cause for alarm. Now rub his face gently downward, (not across nor against the grain of the hair,) and when he becomes reconciled to that, as you

will perceive by his eye and countenance, rub his neck and back till he will permit you to handle his tail freely. You may now lead him out, and call upon him constantly, in a steady tone, "come along," (whispering the words to horses is better than to speak loud,) and in a few minutes he will follow you about quite tame and gentle. Two emotions, says Rarey, fear and anger, a true horseman should never feel.

How to Treat Nervous Horses.—Never "shy" yourself when your horse is becoming nervous, nor notice it in your horse, far less punish him. An experienced horseman says, whenever you notice the horse directing his ears to any point whatever, or indicating the slightest disposition to become afraid, instead of pulling the rein to bring the horse toward the object causing its nervousness, pull it on the other side. This will instantly divert the attention of the horse from the object which is exciting its suspicion, and in ninety-nine cases out of a hundred the horse will pay no more attention to the object from which he will fly away if forcibly driven to it by pulling the wrong rein.

Feeding and Watering Horses.—The London Omnibus Company have lately made a report on feeding horses, which discloses some interesting information, not only to farmers but to every owner of a horse. The company uses no less than six thousand horses; three thousand of this number had for their feed bruised oats and cut hay and straw, and the other three thousand got whole oats and hay. The allowance accorded to the first was: bruised oats, sixteen pounds; cut hay, seven and a half pounds; cut straw, two and an eighth pounds. The allowance accorded to the second: unbruised oats, nineteen pounds; uncut hay, thirteen pounds. The bruised oats, cut hay and cut straw amounted to twenty-six pounds; and the unbruised oats, &c., to thirty-two pounds. The horse which had bruised oats, with cut hay and straw, and consumed twenty-six pounds per day, could do the same work as well, and was kept in as good condition, as the horse which received thirty-two pounds per day. Here was a saving of six pounds per day on the feeding of each horse receiving bruised oats, cut hay and cut straw. The advantage of bruised oats and cut hay over unbruised oats and uncut hay is estimated at five cents per day on each horse, amounting to three hundred dollars per day for the company's six thousand horses. It is by no means an unimportant result. Six pounds of horse-feed per day saved on each horse, and no horse-power lost.

A French writer says the same quantity of oats given to a horse produce different effects according to the time they are administered.

There is always a quantity not digested when water is given immediately after a feed of oats. There is decidedly, then, a great advantage in giving horses water before grain is fed them. And grain and hay given on their return to the stable immediately after hard work is not properly masticated, nor well digested. When a horse returns from work, perspiring and out of breath, it should be allowed to rest for a time, then given a little hay; half an hour afterward, water, and then oats or other grain. By this plan water may be given without risk of cold, as the oats act as a stimulant.

Cost of Keeping Horses.—The *American Stock Journal* says a horse may be maintained in good condition on twelve pounds of hay and five pounds of oats for daily food.

Fifteen pounds of hay and twelve quarts of oat meal, says the *Country Gentleman*, is a fair average to keep a good sized horse in fine condition for all road or farm work.

An article in the *New York Tribune* says, the Third Avenue Railroad Company keep seven hundred horses, upon the following daily rations: hay, fourteen to sixteen pounds; meal, fourteen to sixteen pounds. The hay is, generally, the best of Westchester timothy, bought loose, and always chaffed and moistened, thoroughly incorporated with meal, and always slightly salted before feeding, but never allowed to ferment. The meal is generally made of the best quality of Indian corn, varying occasionally by mixing oatmeal or ship stuff with corn meal, and such other variations as may be deemed necessary, when a horse is "off his feed."

Another writer says it costs the New York Third Avenue Horse Railroad [at ordinary prices,] sixty-two and a half cents a day to feed its horses, but Boston keeps its horses for forty-one cents. The feed in both cases is about seventeen pounds of corn meal and thirteen pounds of hay for each horse a day, with seven pounds of rye straw for bedding.

The following we quote from the *Scientific American*: With hay at a cent a pound and meal at the same price, the daily cost of keeping a horse will be twenty-eight cents, making one dollar and ninety-five cents per week—equal to one hundred and two dollars and twenty cents a year.

The Horse Stable.—Horses should be fed regularly, with clean and wholesome food, and neither stinted nor surfeited. Their stalls and the whole stable should be kept scrupulously clean, and they themselves well groomed—at least once a day; the eyes and nostrils lightly sponged with clear cold water, and the legs from above the knees,

down to the fetlocks, well hand-rubbed. The feet should be examined on coming into the stable, and any particles of gravel or small stones, etc., carefully taken out, and then washed. It is a good plan, twice or three times a week, at night, to stuff the fore feet with a mixture of cow-dung and clay, or cow-dung alone; this keeps the feet cool and the soles tough. The hind legs do not require that attention as they stand in their own offal.

The stable should be well lighted and have good ventilation; but that ventilation should not be caused by having a crack between every board in the building, wide enough to put one's hand through.

A bran mash is a good thing, once or twice a week, given at night, with a handful of salt in it, and his feed of grain mixed with it.

Tie your horse in the center of the stall or he will be liable to drive more on one rein than on the other.

The *New England Farmer* says, never attempt to clean or otherwise disturb your horse while eating his meal, unless you want him to bite and kick. But when you clean, take him out of the stall, and make a business of it.

Daily Exercise of Animals.—Horses require daily exercise in the open air, and can no more be expected to exist without it than their owners. Exercise is an essential feature in stable management, and like well-opportuned food, tends alike to preserve the health of horses. Daily exercise is necessary for all horses unless they are sick; it assists and promotes a free circulation of the blood, determines morbid matter to the surface, develops the muscular structure, creates an appetite, improves the wind, and finally invigorates the whole system. We can not expect much of a horse that has not been habituated to sufficient daily exercise; while such as have been daily exercised and well managed, are capable not only of great exertion and fatigue, but are ready and willing to do our bidding at any season. When an animal is overworked it renders the system very susceptible to whatever morbid influences may be present, and imparts to the disease they may labor under an unusual degree of severity. The exhaustion produced by want of rest is equally dangerous; such horses are always among the first victims of disease, and when attacked their treatment is embarrassing and unsatisfactory.

Shoeing Horses for Winter Travel.—N. P. Willis is our authority for the following. He says, you will have discovered, of course, that you can not have uninterrupted winter riding, with a horse shod in the ordinary way. The sharp points of frozen mud will wound the frog of the foot, and with snow on the ground, the hollow hoof soon

collects a hard ball, which makes the footing very insecure. But these evils are remedied by a piece of sole leather nailed on under the shoe—a protection to the hoof which makes a surprising difference in the confidence and sure-footedness of the animal's step.

To Prevent Over-Reaching.—Let the blacksmith make the heel corks of the fore shoes high and the toe corks of the hind shoes high and the heel corks low. Good authority pronounces this an infallible remedy.

A correspondent of the *American Agriculturist* says: Hold up the head of over-reaching horses with the check-rein.

To Prevent Interfering of Horses' Feet.—Make the inner half or halves of the shoe or shoes one-eighth of an inch thicker than the outer half or halves and set them even with the face of the hoof.

An intelligent writer says: Add twenty-five per cent. to the quantity of their food.

Keeping Horses' Feet and Legs in Order.—If I were asked to account for my horses' legs and feet being in better order than those of my neighbors, says Miles, I should attribute it to the four following circumstances: First, they are all shod with few nails so placed in the shoe as to permit the foot to expand every time they move; second, that they all live in boxes instead of stalls, and can move wherever they please; third, they spend two hours, daily, walking exercise when they are not at work; and fourth, that I have not a head stall or track chain in my stall. These four circumstances comprehend the whole mystery of keeping horses' legs fine, and their feet in sound working condition up to age.

Washing Horses' Legs.—Whenever it is necessary to wash a horse's legs do it in the morning, except the legs are already soaked. If they are not then rub down when the horse comes in with straw and dry brush, and the next morning wash as clean as soap and water can make them. Pick and wash the soles as quick as the horse comes in.

To Prevent Horses Chafing under the Collar.—A correspondent of the *Boston Journal* advises simply a piece of leather cut in such a shape as to lie singly between the shoulders of the horse and the collar. Chafing is caused by friction. This prevents the friction as the collar slips on it instead of the shoulder.

To Prevent a Horse or Mule from Breaking His Halter.—Many remedies have been proposed for curing this bad habit, but a simple and effective one is, to discard the common halter, and get a broad strong leather strap to buckle around the neck a few inches below the ears. A horse may pull at this, but will soon give it up.

Tying Horses.—Barrow tells us that Icelanders tie the head of one horse to the tail of another, and the head of this to the tail of the former. Under these circumstances, if the animals are disposed to move, it will only be possible in a circle, and even then there must be an agreement to turn their heads the same way.

To Prevent Horses from Jumping.—A correspondent of the *Iowa Homestead* was riding with a friend, and observed that one of the horses had a hole in each ear. On inquiring the cause, he learned that it was to keep the horse from jumping. "Why," said he, "a horse don't jump with his ears." "You are mistaken," replied his friend, "a horse jumps as much with his ears as with his feet, and unless he can have free use of his ears he can not jump. He ties the two ears together and has no more trouble with the horse.

To Start a Baulky Horse.—It is said that if you tie a rope to his fore feet and go ahead he will follow. Or open his mouth and fill it with dry dirt or sand and he will go.

A noose placed around the under jaw of the animal, just below the front teeth, will enable one to obtain a complete mastery over him by leading or holding him with the end of the rope.

Remedy for Horses Catching the Rein.—An enlargement of the upper, in the extreme back part of the bow, to an inch and a quarter or an inch and a half in diameter, will most commonly prevent the catching of the line under a horse's tail when in harness.

To Stop a Runaway Horse.—A correspondent of the *American Agriculturist* recommends the following: Take a small but strong cord, tie one end into a loop (*not* slip noose), pass it over the horse's head, and attach it rather loosely to the throat latch, so that it will not fall down too low. The other end of the cord is passed to the carriage within easy reach of the driver. When the horse runs, and cannot be stopped by the reins, pull upon the cord, hard enough to stop his breathing; he will soon stop—indeed *he must stop*. So soon as he stops, slack up the cord and quiet him by soothing words and kind treatment. There is no danger of his falling, as he will stop long before he becomes exhausted, and will brace himself on his feet so long as he has strength—the cord being slackened as soon as he stops will relieve him. This simple remedy may be applied to any horse which is in the habit of running away; he will very soon connect cause and effect together, and after a few trials, will be entirely cured. Kicking, backing, and other vicious habits yield to the same remedy when judiciously employed.

To Extricate Horses Easily from a Burning Building.—In remov-

ing horses from a stable or any other building on fire, considerable difficulty is always experienced in consequence of the terror which seizes them, especially when the fire and smoke have come near them. If, however, the harness and trappings be thrown over draught horses, and the saddle placed as usual on other horses, they may be brought out as easily as on ordinary occasions. If time permits, substitute the bridle, &c., for the halter, and thus the animal's fears will be completely removed. Self-possession in the person that is employed is indispensable.

To Recover Stolen Horses.—A correspondent of the *Homestead* says: I once knew one of a pair of horses that was stolen recovered mainly by the track being made out by his mate, and that after he had been absent six or eight hours. With some horses, he adds, the scent is as acute as with a dog.

To Teach a Horse to Lie Down.—First, with some soft handkerchief or cloth tie up one fore leg; then with a stick tap him on the other, and say, "Kneel!"—sometimes by rubbing him on the head, and patting him on the leg, you will induce him to lie down. Repeat the trial three or four times, and you will be successful.

Bridle Bits in Cold Weather.—Be sure and cover the bits of your bridles in cold weather with leather to prevent the frost from making the mouths of your horses sore. It is downright cruelty to put an iron bit into a horse's mouth on a cold morning. If you doubt it, bit yourself some morning when the mercury stands below zero.

To Protect Horses' Feet from Tenderness and Slipping.—Gutta percha is now used to protect the feet of horses from tenderness and slipping. It is first cut into small pieces and softened with hot water, then mixed with half its weight of powdered sal ammoniac, and the mixture melted in a tinned saucepan over a gentle fire, keeping it well stirred. When required for use, melt in a glue pot, scrape the hoof clean, and apply the mixture with a knife.

To Accustom a Horse to a Gun, Umbrella, &c.—Commence by showing your friendship by rubbing the horse's face with your hand; then snap and explode percussion caps with a pistol. Let the horse frequently smell the powder and smoke; then you may fire small reports until you see fear removed; then overhead and behind the horse until all is free. If you have a very wild horse, place him in a stall or small pen, so as to have him safe; then fire a gun all around him, and go often up to him, speak to him, and rub him in the face, and then fire the gun again, until he is free from starting. To make a horse used to an umbrella, walk before him, raising it up and shutting

again; let him smell it, and rub it over his head, and then get on him, gently raise it, and ride him until the fear is over. It is better to take him to some new place. Sometimes horses will remember years places and habits, both good and bad. You must rub your horse on both sides; for he may be gentle on ~~one~~ side and not on the other.

Rarey's Opinion of Blinkers on Horses.—All my experience with observation of horses proves clearly to me that blinkers should not be used, and that the sight of the horse, for many reasons, should not be interfered with in any way. * * * Horses can be broken less time and better without blinkers; but horses that have always worn them will notice the sudden change, and must be treated carefully the first drive. After that they will drive better without the blinkers than with.

DISEASES OF THE HORSE AND THEIR REMEDIES.

Cure for Colic in Horses.—One of the best veterinary surgeons in the city of Baltimore recommends three ounces of spirits of turpentine and one ounce of tincture of opium. If relief is not obtained in one hour, repeat the dose with one ounce of best powdered aloes well dissolved together.

Another remedy is: Half an ounce of laudanum and one ounce of sweet spirits of nitre, given in a pint of warm water; repeat the dose half an hour, if relief is not afforded. When the attack is severe, one ounce of laudanum should be given first. In case of "wind colic," it would be best to add the essence of ginger and oil of pepper-mint.

Charcoal is recommended by some.

A correspondent of the *Country Gentleman* recommends for flatulent colic, linseed oil, one pint; castor oil, half a pint; tincture of opium, one ounce; sulphuric ether, two ounces. Mix, and give at the dose.

Worms in Horses.—Dr. Vadd prescribes twelve ounces castor oil; one ounce of wormwood, one ounce; and oil of tansy, three drachms; to be given on an empty stomach, followed by mash of fine feed or shorts, well seasoned with salt. To be repeated if necessary until the bowels respond.

A correspondent of the *Southern Cultivator* says: Administer a ta-

blespoonful of copperas, pulverized ; in three or four days repeat the dose. The horse is relieved of the worms at once—eats and thrives and his hair becomes sleek.

Bots in Horses.—The following is considered a specific: Sulphuric ether, two ounces ; laudanum, two drachms ; warm water, sweetened one quart. Drench the animal, and repeat the dose if necessary in an hour, to be followed two or three hours afterwards with a good dose of linseed oil.

Scours in Colts.—Boil smartweed in water enough to make a strong tea, and give your colt a half pint in two quarts of scalded milk twice a day. This has been highly recommended.

Treatment of Wounds, Corks and Collar Galls in Horses.—On one ounce white vitriol, one ounce copperas, one tablespoonful gunpowder one quart soft water. After washing the parts with hot soft water and wiping dry, apply the above wash with a sponge or cloth.

The following, known as Masson's Oil, is highly esteemed as a cure. Take two ounces of rock salt, two ounces of copperas, two ounces of white vitriol, eight ounces of sale molasses, one-half pint of linseed oil, and one pint of chamber lye. Pulverize and boil the above together fifteen minutes ; then add four ounces spirits turpentine and one ounce of oil of vitriol, and bottle it up. When cold it is fit for use. Shake the bottle before using it. Bathe the wound once or twice a day, and dry it with a hot shovel.

A communication to the *Michigan Farmer* recommends that salt peter should be dissolved in warm water, in such proportions as to be moderately strong to the taste, and blue stone added until the solution is *slightly* tinged. This, and nothing else, is to be used as a wash two or three times a day. It purifies the wound, destroys the proud flesh, produces granulations immediately, and heals the wound in a surprisingly short time. He says : I have had a horse badly kicked and otherwise hurt, in midwinter and midsummer, and their cure was equally rapid, and afterwards no scar was visible. The wound requires no covering, flies will not approach it, and dressing it with a mop of rags tied to a stick is very little trouble. Wounds do not require to be sewed up under this treatment ; at least, I never saw any advantage from it, as the stitches have uniformly torn out.

Major Long says that his party found white lead moistened with milk to succeed better than anything else in preventing the bad effects of galls on their horses' backs.

For Sprains in Animals.—Mix together half a pint of soft soap, one ounce of the oil of origanum, two ounces spirits of camphor, a quarter

an ounce saltpeter, and half a pint of strong vinegar; rub the limb affected three times a day for a few days—taking care, before each rubbing, to wash the part with warm water and Castile soap, and dry it with a cloth before each rubbing.

Scratches in Horses.—Wash their feet and legs clean, and when dryoint with white lead. One or two dressings only will be needed.

Or, first wash them clean with soft soap and water, and then apply white lead and linseed oil, rubbing it thoroughly in with a brush. One application will commonly effect a cure, but in bad cases two may be necessary.

Another remedy is: In mild cases, wash with soap suds, and grease with fried pork fat. In bad cases, apply a solution of copperas in vinegar. Heal the sore with lard.

A correspondent of the *New England Farmer* says his method of curing scratches is to rub on West India molasses a few times. He has never known it to fail.

And a writer in the *New York Tribune* says: We have never known an application of beef brine to fail. Wash the legs first with warm soap suds, and then two or three times with old beef brine, and the scratches are cured.

Cure for Horses Rubbing their Tails.—Wash three or four times with stale urine. Said to be effectual.

To Remove a Film from a Horse's Eye.—Apply medicamentum to the film with a feather. Or, bake beef steak until it becomes a crust, then pulverize and throw into the eye. Or, take the white end of an egg, pulverize and throw into the eye.

Remedy for Corns on Horse's Hoofs.—An old horseman says: Don't pull out the corn, nor put spirits of salt on it; neither pare the heel down so that the shoe will not touch it. Take some tow dipped in tar, place on the corn, and nail the shoe on over the tow, which lessens the jar on the corn. Put the shoe on with five nails, three on the outside, and two on the inner side. Perhaps some will say, "Oh! five nails won't hold the shoes on my horse's feet three days." All I have to say is, try it. In three weeks take the shoes off and examine; if the corns are not gone, put on some more tow and tar, and in a few weeks they will disappear.

To Remove a Wart from a Horse's Foot.—Apply a few drops of nitric acid with a small stick to the wart two or three times a week, and be careful it does not run on to the surrounding skin. As the wart dries, cut off the dead part, and apply until it is removed; then apply linseed oil to soften the sore, should there be one.

Treatment of Ringbone.—For incipient ringbone the best remedy emphatically is *rest*. Dr. Dadd recommends in addition, an application of acetate of cantharides. When the part becomes hot apply cold water bandages.

A reliable remedy is said to be, equal parts of oil of spike, British oil, and turpentine, mixed, with an infusion of liquid vitriol sufficient for fomentation—to be applied immediately—and remixed and applied every other morning, for three successive times—after which soft oil of some kind should be used to suspend the cauterizing effect.

Not to remove the bunches, but to cure the lameness: One half pint spirits turpentine, one ounce oil organum, one ounce oil amber, one ounce oil of spike, one half ounce aquafortis. Mix in a bottle, and apply daily with a swab.

Spavin.—The best remedy for spavin, taken at the first symptoms is *rest*. Turn the animal out to grass, if in summer, or give him a stable with a soft floor, or a warm yard, if in winter. A cooling lotion may abate any inflammation; and may be made by mixing alcohol vinegar, and common salt, and applying it by means of a broad flannel sponge, occasionally dipped into the liquid, and drawn around by a broad strip of tape sewed to it. Prevention is always better than cure; and be sure never to breed from a diseased animal, and be careful never to strain the limbs of a young animal by hard work.

Take camphor and dissolve it in spirits of turpentine, to be applied till the hair starts, but not to blister severely. Then let the horse rest a few days. The above was recommended in the *Country Gentleman* as a cure.

String Halt.—Bleeding in the leg is said to be a remedy.

Artificial Hoofs for Horses.—An English paper says: What is required by the veterinary surgeon is a substance possessing the consistence of horn, to retain the nails of the shoe; that will readily soften by heat, so as to mold itself to the required form; that it be indissoluble in water, that the horse's hoof is generally in contact with moisture; and, lastly, that it be capable of uniting perfectly with the hoof. No known substance possesses all these qualities except gutta percha. For the purpose under consideration it is prepared by being cut into fragments the size of a nut and softened in hot water; the pieces are then mixed with half their weight of powdered sal-ammoniac, and melted together in a tinned saucepan over a gentle fire, keeping the mass stirred; the mixture should assume a chocolate color. When required for use it should be melted in a glue-pot; the surface of the hoof must be scraped clean, and the gutta percha applied as required.

The application may be facilitated by the use of a glazier's knife warmed, by which also the surface of the artificial hoof may be smoothed and polished. In this way many a valuable horse may be rendered useful, which otherwise would only remain fit for slaughter. On the score of humanity, also, this application of gutta percha is to be welcomed.

For Fistula or Poll Evil.—Take a good large handful of poke roots, and put them into a gallon of water and boil them till you get the strength out; then take out the roots and boil down to one quart; then add half a pint of spirits of turpentine; also half a pint of oil of spike; then simmer away to one quart; add four ounces of blue vitriol, and it is ready for use. Cleanse the sore with soap-suds once a day; and when dry apply the liniment. A few applications will generally be sufficient.

Another invaluable remedy is: Three gills alcohol, one ounce aqua-vitæ, one ounce spirits turpentine, one ounce corrosive sublimate, one ounce camphor, one vial oil of spike, one ounce castile soap. Mix together in a strong bottle, and shake well before using. Wash the affected parts well with the soap-suds, and apply the above preparation until it is cured. It is recommended also for corns and warts.

Another: Fill a woolen bag, one foot long, and six or seven inches wide, with hickory ashes; place it in a vessel of water and make it boiling hot, and while hot, press out the ley between two boards, and apply to the parts affected while steaming hot, and let it remain some minutes. If the disease is not of long continuation, one or two applications will be sufficient to dry it up, and effect a permanent cure.

Another: Inject into the opening strong brine of common salt with syringe. If it breaks out a second time, repeat.

Cure for Sweeney.—Take equal parts of balsam of sulphur and spirits of turpentine. Mix, apply, and hold a hot iron near enough to heat but not to scorch. Apply every other day, till a cure is effected—usually from ten days to two weeks.

Or, take laudanum, camphor, spirits hartshorn, spirits turpentine, castile soap, alcohol, each one ounce, and one gill sweet oil. Rub well the affected part twice a day for a week. This is said to be a certain cure.

Or, take one pint of turpentine, one ounce Spanish flies, half a pound of lard, half a pound of resin. Melt the lard and resin together. As it cools add the flies and turpentine. Apply it to the affected parts, and rub well with the hand. In two or three days rub again—that will take off the hair—then rub again and it will blister. If three ap-

plications do not cure, then continue it till it does cure. The contributor of this says it will cure, and he would not be without the knowledge of it for the price of three good horses at least, for it has already cured that number for him.

Cure for Founder in Horses.—Recommended by a correspondent of the *Cotton Planter*, as speedy, safe and certain: Clean out the frog of the foot; let it be well cleansed by scraping off all the dirt. Raise the foot so as to be level—pour spirits of turpentine, a sufficient quantity, so as not to run over the hoof; then set the turpentine on fire and let it be all consumed.

Cure for Heaves in Horses.—Sour milk.

"*Lampas.*"—Do not resort to the cruel practice of burning them out. It is unnecessary, and the injury thus done to the mouth can never be repaired, as it permanently impairs the power of perfect mastication. The inflamed parts may be lanced with a sharp penknife if thought best. After the lancing, it is recommended to wash the mouth with two ounces of tincture of myrrh, to a pint of water, or a strong solution of alum in water. Feed the colt on bran mashes and grass, withholding all grain until he eats without difficulty.

Cure of Lockjaw in a Horse.—*Wilke's Spirit of the Times* states that a recent case of lockjaw in the horse is reported in the English Sporting papers, which was cured by eight ounces of chloroform. The filly lay prostrate under the effects of the medicine for nearly four hours when the effects of the powerful potion passed off, and the malady went with it. She promised soon to entirely recover.

The Mule.—A correspondent of the *Wisconsin Farmer* sums up the merits of the mule as compared with the horse as follows: 1. He is much more easily and cheaply raised than his cousin, the horse. 2. He eats but little more than half as much when matured. 3. He is satisfied with and thrives upon a coarser and less expensive kind of provender. 4. It costs less to keep him in harness and in shoes. 5. He is proportionately stronger. 6. He is very much tougher. 7. He is less liable to disease. 8. He has more sense and docility. 9. He is better adapted to some important kinds of work. 10. He is a true puller, and, when loaded, a quicker traveler. 11. He sells for a better price. 12. He lives more than twice as long. 13. He is better looking. [No accounting for taste.] 14. In nothing but fleetness is he excelled by the horse.

J. T. Warder, of Springfield, Ohio, in the Agricultural Report, says: In every country the mule is sure-footed and hardy. * * * The mule is everywhere hardier than the horse, subject to fewer diseases

more patient, better adapted to traveling on rugged and trackless surfaces, less fatidious as to its food, and much less expensive in feeding, more muscular in proportion to its weight; and usually living and working to about double the age. He adds: In the mule we have the size and activity of the horse, combined with the form and hardihood of the ass, while he surpasses both his parents in sure-footedness and in longevity, and has more endurance and greater power of recuperation from fatigue and exhaustion when excessively worked. Well-bred mules are as spirited, and equally active, or even quicker than horses, if perfectly broken. They will walk fast, and in the draught they pull even more steadily. Their intelligence is so great that they may be trained very readily either to the line or to the word, and many splendid, large teams are driven, even over rough ground where there is scarcely any road, perfectly guided by the voice of the teamster, aided only by the loud crack of his whip, which they understand as a sound of encouragement rather than as an intimation of impending torture.

In southern countries particularly they are used for light transportation almost exclusively, and even the grandees use them for carriages as well as under the saddle. In our own country the prejudice that once existed against them is rapidly yielding, and we find them used in the street cars in some of our cities, and occasionally observe them attached to elegant private carriages.

The census tables show that the number of mules produced has increased in a greater ratio than those of any other kind of farm stock, and that from 1850 to 1860 the total number of these animals had more than doubled.

CARE AND MANAGEMENT OF CATTLE.

Cows—Points of a Good Milker.—According to the *Ohio Farmer*, a cow, to be a good milker, must have a good form, firm and compact bones, wide and deep chest, wide and broad udder, thin hide, soft and glossy hair, and a gentle feminine look. Large, thick bones mark the character of the animals. They are generally spongy; if so, the animal is a coarse, half formed concern, that has no richness of body, mind or production. If large and compact, they show her to be too masculine, and that her appropriate place is at the plow, rather than

in the milk stall. Such cows give milk and water, rather than good milk.

So, too, a cow with a large, clumsy head, dull eyes and *stag horns*, should be killed or sold, but never kept for milk. For a good cow there should be as much mildness, amiability and beauty, in the head, eyes and countenance, as in a lovely woman. It is not all nonsense to say: "A good cow should be as pretty as a school ma'am." Good lungs are another requisite of a good milker, and an important one. Without them the milk is unhealthy, partaking of the constitution of the animal.

In selecting a milker, look well to the udder. Before milking, it should be wide and broad, not hanging down like a sack; and hard and shiny, nearly destitute of hair, and what there is should be short, fine and bright. After milking, the udder should be soft, and apparently a skin-bag. If, after milking the udder is hard and full, it shows that it is flesh, and not milk, that distends it. A thin skin, and soft glossy hair, is an index to the texture of the whole animal. If these are right, the whole animal may generally be set down as good.

Points of a good Dairy Cow according to Harley.—Head small, long, and narrow toward the muzzle; horns small, clear, bent, and placed at considerable distance from each other; eyes not large, but brisk and lively; neck slender and long, tapering toward the head, with a little loose skin below; shoulders and fore quarters light and thin; hind quarters large and broad; back straight, and joints slack and open; carcass deep in the rib; tail small and long, reaching to the heels; legs small and short, with firm joints; udder square, but a little oblong, stretching forward, thin-skinned and capacious, but not low hung; teats or paps small, pointing outward, and at a considerable distance from each other; hair short, soft, and woolly; general figure, when in flesh, handsome and well proportioned.

What is a Good Cow.—The *New York Tribune* says: One cow may be good for producing milk for sale by the quart; another good for making butter, where that alone is the object; a third one may be good for a cheese dairy and very poor for butter; and a fourth not good for either purpose, and should at once be turned out for beef. For butter making, we think a cow which gives fourteen quarts of milk a day, when fresh, and fourteen pounds of butter a week, a good cow, and that that might be adopted into use as the meaning of a good butter-dairy cow. A good many cows, it is true, go above that, but they should be ranked as extra good. A cow that gives twelve or fourteen quarts of milk a day, and ten pounds of butter a week, might

be called a fair medium cow; and one that gives eight or twelve quarts a day and six or seven pounds of butter a week, should be called common, and all below that inferior, as in fact they are; and so is a cow that gives fifteen or sixteen quarts of milk a day that yields only a pound of butter, and there are many of this description. The lowest rate we ever heard was three quarts of milk for a pound of butter, but that is very rare, the average being over twelve quarts.

A cow that will average five quarts of milk a day through the year, making one thousand eight hundred and twenty-five quarts, is an extraordinary good cow. One that will yield five quarts a day for ten months is a good cow, and one that will average four quarts during that time is more than an average quality. That would make one thousand two hundred quarts a year, which, at three cents a quart, is thirty-six dollars.

The daily yield of an Ayrshire cow has been estimated by Youatt at five gallons a day, on an average, for the first two or three months after calving; at three gallons for the next three months; and at one gallon and a half for the next four months—making an annual average of a cow at eight hundred and fifty gallons—though, allowing for some unproductive cows, he estimates the average of a dairy at six hundred gallons per annum for each cow. Three gallons and a half of the Ayrshire cow's milk will yield one and a half pounds of butter. He therefore reckons two hundred and fifty-seven pounds of butter, or five hundred and fourteen pounds of cheese, as the yield of every cow.

For a dairy cow many excellent authorities assert there is none equal to the Ayrshire; while for family use, where but one or two are kept, perhaps the Alderney or Jersey cow ranks highest.

Cost and Profit of Keeping Cows.—A New England paper states that Otis Brigham, of Westboro', Mass., announces, as the result of many year's experience, that good cows eat, on an average, twenty pounds of hay per day when giving milk, and fifteen pounds when dry—not guess work, but tested by actual weighing for months at a time. Then it is easy to calculate the cost of milk. In the neighborhood of New York, the average value of hay is one cent per pound, and the quantity of milk not over six quarts. At three and a half cents a quart, it will pay the hay bill and one cent a day over. If other feed is given, the increase of milk must pay for that. The manure will be worth at least the cost of attendance and milking. If the milk is worth more than three and a half cents, it gives a profit; and if less, a loss.

Three per cent. of the cow's weight each day is the quantity of hay

generally estimated to keep her well during the time that she requires to be fed. This usually demands from one and a half to two tons. Whoever wishes to secure the greatest possible profit from his cows, should certainly provide two tons of hay or its equivalent.

Fall, Winter and Spring Feed for Cows.—In addition to good hay give some or all of the following so as to afford sufficient variety: Indian corn, oats, buckwheat and rye ground, rye and wheat bran, cornstalks, oat straw, pumpkins, turnips, cabbage, carrots, beets, &c. Many of the best dairymen chaff their hay, steam it, and then mix ground feed with it; also cut up their cornstalks and straw and mix with ground feed. Some feed grain boiled whole. All who are successful feed with care when changing cows from grass to hay in the fall and from hay to grass in the spring to save them from falling off either in milk or flesh, which they are very liable to do.

The Chinese sugar cane is highly recommended as food for milch cows. And W. C. Earl, of Toledo, Ohio, states that he fed his cow tomatoes, green, ripe, and thawed out after freezing, with good result; they not only caused her to give a good supply but a rich quality of milk. In his opinion there is no vegetable superior to the tomato for making milk.

Dr. Valcker states that in the fall of the year, milk, when the cows are well fed, yields more cheese and butter than during the summer. But if the cows have not a good supply of nutritious food, the milk falls off greatly.

It is said that the time to feed turnips to cows is morning and evening, just after milking, and the turnip taste in the milk and butter will be avoided.

One of the best dairymen of Orange county, New York, says he thinks that by currying a cow, and keeping her and her stable scrupulously clean, she will give her full quantity of milk on half the feed required if she is neglected.

It is suggested that in feeding cows pumpkins the seeds should not be given to them on account of their well known diuretic quality.

Stabling Cows.—During the cold season cows should be well housed and well fed. The stable should be just moderately warm, well ventilated, clean, and provided with a little bedding. Aside from the mere matter of food and drink, the animals should be made comfortable. This matter can hardly be over estimated. In mild weather they might range by day in a commodious yard, protected on two or more sides by covered sheds. There should be running water, or a trough kept full from a pump in the yard.

Cows should be salted two or three times a week.

A dairyman who keeps a large number of cows, secures them in the stable with stanchions, all attached to a long rod or bar, so that by having the food previously deposited, when the cows are turned in, each eagerly seeks her place, and every one is secured by one movement of the rod.

At the State Almshouse, Massachusetts, the manager of the farm beds his cows regularly with sand, which he considers superior to any other substance for that purpose. It is warm, easy to lie upon, prevents the cow from slipping when reaching her food, is an excellent absorbent of liquids, easily shoveled in and out, a superior divisor of droppings, and is an excellent substance to apply to cold lands.

Milking Cows.—Each cow should have a steady milker, be milked as fast as possible and all the milk drawn. There is a loss of one-third in many dairies, by the lazy hap-hazard way in which cows are milked. Allow no talking or whistling.

It is said to have been proved in England, by nicely conducted experiments, that the last drawn milk is twelve times as rich in cream as the first.

The best way of milking is to approach the cow gently, to say a kind word as you seat yourself by her, to apply the left hand to the forward teat next you, and the right to the one opposite, holding the left arm rather firmly, that it may ward off from the pail any sudden movement of the cow's foot, then milk as fast as you conveniently can those two teats, till the milk is nearly exhausted, after which milk the other two in the same way till exhausted, then strip the first two, next the last two, and then quit.

The manner of milking exerts a powerful influence on the productiveness of the cow. A slow and careless milker, or one who treats her harshly, soon dries up the best of cows. The animal must be approached gently, never struck or abused, and the operation of milking begun gradually, steadily increasing in rapidity, until all is drawn. If the milking is performed in the stall, it is a good plan to feed at the same time with roots or some other palatable food.

When the milking of a cow is begun there should be no cessation till it is completed—no stopping to talk or bandy jokes; and if the labor is wearisome, rest should be taken rather after finishing with one cow before beginning with another, than while milking any one. If the milker is a man with ordinary strength, he should remember what has been said about holding the left arm firmly to guard the pail.

Women and children might fail in this; but a full grown man should have his milk pail kicked over but once in a very great while.

Breaking Heifers for Milking.—This is often quite a serious affair, in which kicks and bruises are freely interchanged between the frightened brute and the irritated master. Many an otherwise excellent milker is spoiled for life by harsh treatment. A heifer, if well broken to the milk pail, is thereby made worth at least twenty per cent. more—an increase that will pay for much painstaking. Rarey's reasoning respecting horses applies equally to other animals. They only resist when injury is apprehended, and their natural instinct suggests a danger whenever any unusual treatment occurs. Every one has noticed how shy a creature is on entering strange enclosures, or at sight of new objects. The handling of a heifer's bag is to her an unusual proceeding, and, in addition, the teats are often tender, and the bag caked and inflamed so as to be painful under even a gentle touch. Training for milking should commence long before calving. First teach the animal to welcome your coming by little presents of an apple, a handful of corn or salt, or other delicacy, she will soon permit the hand to be laid upon her back and enjoy the gentle rubbing and scratching which may be given. Extend the handling to different parts of the body, until she will not shrink from grasping her teats, and the work may be soon accomplished without even a harsh word.

It is said that young cows, the first year they give milk, may be made, with careful milking and good keeping, to give milk almost any length of time desirable; but that if they are allowed to dry up early in the fall, they will, if they have a calf at the same season, dry up at the same time each succeeding year, and nothing but extra feed will prevent it, and that but a short time.

To Prevent Cows from Holding up their Milk.—Several remedies are prescribed:—One is, to feed at the time of milking; another, to drive them so that their hind feet will be either higher or lower than the fore feet; another, to put a bag of meal or any other weight on their backs; another, to continue milking patiently until she ceases to hold it. Patience and perseverance will generally overcome the difficulty and effect a cure.

Solon Robinson says, the best way to make a cow give down is to coax her. Strapping up the fore leg of a cow with a strap slipped over the bent knee so that she cannot walk until milked, will sometimes cause her refractory disposition to yield.

To Prevent Cows from Kicking.—Treat them uniformly with gentleness and kindness, and guard the pail firmly with the left arm as

recommended above. If this is not sufficient remedy try some of the following:

Strap up the off fore leg, as directed for holding up of milk. If her foot is well drawn up she cannot kick. A pin of some soft wood, six or eight inches long, and an inch and a half in diameter, inserted between the strap and the knee joint, will secure the strap from slipping off.

Tie a cord or small rope around the body of the cow, just in front of the hips and udder, drawing it pretty tight. Some tie it loosely just back of the fore legs, then with a short stick twist it tight, and hold the stick with the right hand while they milk with the left.

Place the cow in the stanchions, then put a rope around her horns, and pass it over the beam over her head, draw it up until her head is as high as it can be without raising her feet from the floor, fasten it, and she cannot kick.

Cows dislike to have their teats jerked, and if, whenever they kick or step, this infliction *always instantly follows*, they will soon cease. It is of the utmost importance that it be *invariable* and *prompt*, and uniformly severe, not irregular, and never but *once* performed for each repetition of the fault.

Some tie the cow's hind legs together just above the knee.

To Milk a Cow with Sore Teats.—A correspondent of the *American Agriculturist* recommends to take hens' quills, cut an oblong hole about one-fourth of an inch from the small end of each, oil them and insert them into the teats. They will cause no pain and empty the milk in a short time.

How to Improve the Stream of Milk.—The editor of the *Country Gentleman* says: Take a small, sharp-pointed penknife in one hand, grasp the teat firmly in the other, and, by a quick, steady motion, insert the blade an inch or more into the orifice through which the milk passes. He adds, those who have tried this, have pronounced it a certain remedy.

To Prevent Cows from sucking themselves.—The following plans have all been tried and pronounced effectual:

Smear the teats night and morning with soft grease, and then dust them thoroughly with pulverized Cayenne pepper. Continue this about a week.

Use a "cow collar," made in various ways, the simplest being a frame, something like that of a common chair with seat and back off, which prevents the cow from bending her neck more than half way round.

Take a hickory stick about half an inch in diameter, tapering to the ends for lightness, and with a smaller part in the middle, to prevent its slipping either way, and thrust it through a slit in the nose, so that its ends shall project on each side horizontally a few inches, and prevent the cow from pushing her nose under her leg.

The best way to cure sucking cows is to put on an old bridle, with the bit in the animal's mouth. This is said to be the least injurious to the cow, and at the same time the most effectual preventive.

Another method is to take a stick two or three inches in diameter, and from two and a half to four and a half feet long—the larger the cow the longer the stick. Make a mortise one and a half or two inches wide in each end, and put the stick between the cow's fore legs, and buckle a strap that is passed through the mortise in the stick around the body just behind the fore legs, and fasten the other end of the stick in the same manner around the neck, being careful to not make either too tight.

Some resort to splitting the end of the tongue, which is doubtless effectual and at the same time injurious.

Remedy for Sore Teats.—The *Irish Farmer's Gazette* says: Wash twice a day with tincture of myrrh.

A *Country Gentleman* correspondent recommends keeping the cow in the barn, and the milk in the bag reduced by frequent milkings. Then cauterize the edges and inside of the wound with a hot iron, letting the burn heal by granulation.

To Remedy Leaking Teats.—Dip the end of the teat in strong alum water twice a day for several days, and the leak will cease.

To Cure a Cow of Caked Udder.—Half a bushel of carrots a day, and clean milking; or, application of tincture of arnica and rubbing, repeated; or, cod liver oil applied night and morning, with thorough rubbing. Continue it until it effects a cure.

Remedies for Garget, or Bloody Milk.—The editor of the *Country Gentleman* says: Tansy is a sure remedy. A cow that has the garget will voluntarily eat tansy by the handful as she would hay.

The poke plant and root, known also as snake, garget root, pigeonberry, crowberry, &c., are said to cure it; also, that if it grows in cows' pastures, they will not have the garget. Little plugs of poke root are sometimes introduced into the opening of the teat as a remedy.

The following is said to never fail: Take one quart corn meal and six quarts soft water. Soak for one hour, stirring occasionally. Wash the udder three times a day, rubbing well with the hand or a soft cloth.

Wash the udder with salt and water twice a day, and it will generally disappear.

A writer says: Give one pound of sulphur, one-fourth pound at a time, four days in succession, unless the third dose effects a cure. Give in bran or meal, or anything the cow will eat.

Saltpeter is considered a good remedy, given in doses of half an ounce in a bran mash, or other similar food, every evening, or every other evening, according as the effect is visible on the animal, for a week or ten days, or until the animal is cured.

An old dairyman advises that when the usual remedies, cold water, soap suds, spirits of camphor, &c., fail, try a mixture of one part aqua ammonia, and two parts of sweet oil, well rubbed in twice a day until cured.

To Prevent Calves from Sucking Cows, and from Sucking One Another.—Apply to the teats, ears, or whatever part is sucked, a strong mixture of lard and Cayenne pepper. A few applications will be found sufficient.

To Teach Calves to Drink.—Use no harsh measures. Go into the pen as quietly as you can. Set the pail down. In a few minutes, unless very wild, the calf will come up to see the pail. Then put your finger into its mouth, and press its head down until it gets a taste of the milk. There will be little difficulty after that.

To Bring Cows into Heat.—The editor of the *Country Gentleman* says: Give a piece of rennet as large as the palm of the hand, thrusting it down her throat, and she will be in heat within twenty-four hours invariably.

To Produce Animals of Either Sex at Will.—Prof. Thury, of Geneva, Switzerland, who has made the subject a special study, says that, when females are desired, the very earliest period of coming in heat should be taken advantage of; and, if a male is wanted, the latest practical moment. A Belgian farmer writes to the Luxemburg Agricultural Society that if the act of copulation takes place before milking, the invariable result is a heifer calf, while if it is just after the cow has been thoroughly milked, a male calf will be produced. Probably the true theory is, that the most vigorous of the two gives its sex to the offspring. Hence, if the cow is much the oldest, the calf will most likely be a male; if much the youngest, a female.

Economy in Grazing.—There is just as much economy in grazing cattle and sheep upon the same farm, as there is in having hogs follow the herd while feeding corn. Every feeder knows that hogs will fat-

ten well upon the droppings, and every grazier who ever tried it, knows that sheep will fatten upon herbage rejected by cattle.

Sheep do very well among cattle, but cattle do badly among sheep. Cattle do well where horses pasture, but horses will not eat what cattle leave very readily. Horses and sheep do well together, especially the sheep.

Wintering Cattle.—The New York *Tribune* says: The one great error is in neglecting cattle in autumn, after the frost has destroyed the sweetness of the grass, and allowing them to commence getting poor before commencing winter feed. There is no error more fatal to success than such neglect. It is often the foundation of disease that the animal never recovers from. There is no condition so good for an animal going into winter quarters as a thriving fatness; if that can be kept up till midwinter, the danger of starvation upon very light feed in the spring is greatly diminished. It is one of the worst things in all farm economy to neglect feeding stock in the fall, because it is not time to begin to fodder yet. All that is saved of fodder in the fall, upon the plea that "cattle can shift awhile longer," exactly verifies the old saw about "saving at the spigot and wasting at the bung."

The great point in the economy of farm stock is in the winter feeding. Regularity is of the highest importance. A regular system of feeding, milking and cleansing the stables should be strictly adhered to.

The *Tribune* adds: Food which has been crushed, ground, or cooked, is more easily and completely digested by stock, and furnishes more nourishment. Three pounds of ground corn are equal to about four of unground, and three of cooked Indian meal to about four of the same meal uncooked. Meal and roots are usually cooked by boiling, but with suitable fixtures can be much better and cheaper done by steam.

Cows give a greater quantity of milk in winter if fed on moist and succulent food. Hay, cornstalks, straw, &c., moistened with warm water and then allowed to stand a few hours in this condition, are rendered more nutritive. The method of feeding cows in winter is not however so important as to make the change from grass to hay, and from hay to grass, without producing any deterioration in their condition.

Cattle need variety. Every winter shows observing men that domestic animals become cloyed on the best of food, if confined long to one article. Experiments have shown that dogs, cats, and other animals, sicken, languish and die, if kept an undue period on one kind

of food. Obviously the true course is to lay in both enough and a variety of fodder.

In Germany, cattle and horses are fed five times each day, and, of course, a small quantity at each meal.

If a machine was invented to *grind* hay, says the *London Farmer*, the ground article would approximate in value to *unground* oats in producing fat and muscle.

Oat Straw as Food for Sick Animals.—I have often noticed, says Dr. Dadd, in the *American Stock Journal*, that sick horses will eat oat straw in preference to any other kind of fodder; as a matter of course, however, some will refuse to eat it. Oat straw contains a large proportion of nutrimental matter and some phosphates, and when converted into a sort of bran by means of mill stones, is a very nourishing diet. This sort of aliment is useful when combined with ground oats, for animals whose systems lack the requisite amount of phosphates. A milch cow, for example, the subject of a prostrating disease, is very much benefitted by food of this kind.

Use of Salt in the Food of Cattle.—Animals that are permitted to roam in the salt marshes are generally the most healthy, as they consume a large amount of saline material. The antiseptic property of salt is too well known and appreciated by most husbandmen, and the farmer might as well think of entirely dispensing with food as to fail in seasoning food with salt. No animal can long exist without salt; in the stomach it operates favorably, and has a healthy action on the liver, it also prevents the food from running into fermentation, and is death on intestinal parasites.

The use of salt in the food of cattle must not be looked upon as a direct producer of flesh, so much as a necessary element of the economy, without which animals are apt to perish from disease, but with which the animal is kept in a normal and healthy state. A German agriculturist, whose sheep had received habitually a certain dose of salt, deprived ten of their usual allowance, five of which died of rot and worms, the remainder of his flock, four hundred and fifty head, losing but four. The next year a new lot of ten sheep, deprived of salt, lost seven, the remainder of the flock, three hundred and sixty-four, lost five only; a little later the three died also of diarrhea. The third year was very rainy. Sixteen sheep were deprived of salt. The whole of them died in the course of the year of rot and vermicular pneumonia. Sir John Sinclair observes that the habitual use of salt has a marked influence in improving the quantity and quality of the wool of sheep.

M. Garriott assures us that the milk of cows subjected to a daily allowance of salt is richer in butter and cheese than when these same cows are deprived of salt. There exists no doubt among those who have tried it, that when employed in proper quantity it increases the appetite, stimulates digestion, keeps up the nominal supply of salt in the blood, improves the wool or hair of the cattle, prevents disease, and moreover, enables the agriculturist to fatten cattle upon food which they would not enjoy without it were previously mixed up with the salt. A most important consideration, is its influence in preventing disease.

In Great Britain, in the best farmed districts, we find the allowance of salt oscillating around the subjoined figures, taken as a center of basis:

Allowance of Salt per Day.—Calf, six months old, one ounce; Bullock or cow, one year old, three ounces; Oxen, fattening. six ounces; Milch cows, four ounces.

Horses.—To mix salt with the food of the horse, colt, ass or mule, daily, is becoming a frequent practice in England and America. The usual allowance for a full grown horse, is about two ounces per day. In Belgium it is little more than one ounce.

Sheep.—The Romans gave every fifth day about half an ounce per head, and this is precisely the quantity which is still employed in England and Saxony daily, for sheep full grown and of ordinary size. Salt is more beneficial to sheep than to any species of cattle.

Pigs.—The best proportion to adopt appears to be about two-thirds of an ounce per day for full grown pigs.

In administering salt, unless it be used as a medicine, the more intimately it is mixed with the food, the better. An excess of salt is injurious to any animal. With horses an excess of salt has produced dysentery; and in oxen diseases of the blood.

Considered as a medicine, salt purges animals at the following doses: Horses, eight to ten ounces; Sheep two to three ounces; Oxen ten to sixteen ounces; Pigs two to three ounces; Dogs one to two ounces.

It becomes poison at the following doses:—Horses two pounds; Oxen three pounds; Sheep six to eight ounces; Pigs four to six ounces.

The *Stock Journal* says the best rule for salting animals is to keep it constantly before them, and they will then take it in such quantities and only in such quantities as their systems require; but if deprived of it for some time, they become so eager for it, that they may eat so much as to injure them when they are liberally fed.

Another writer says: Do not give it in excess. If you cannot get rock salt, or if that is too expensive, mix fine salt with soft clay, and dry that in large cakes, and lay them under cover for the cattle to lick.

Water for Stock.—Every effort should be made to supply each pasture with fresh running water. When this cannot be done, and the water must be drawn from wells, it should, if possible, be drawn daily and not at long intervals and not allowed to remain exposed to a burning sun until it becomes almost putrid. During the hot weather water troughs should be cleaned often, and kept entirely free from the vegetable fungus, which will accumulate. In many sections of the country, fresh running water cannot be obtained, and the farmer is forced to rely upon his artificial ponds to supply his stock. When this is the case care should be taken to remove the rank vegetation and bushes from the banks, and thus expose the water as much as possible to the action of the winds, as it is thus kept in motion, and in a great measure prevented from becoming stagnant.

Quantity of Food for Oxen.—Frequent observations have shown that an ox will consume two per cent. of his weight of hay per day to maintain his condition. If put to moderate labor, an increase of his quantity to three per cent. will enable him to perform his work, and still maintain his flesh. If he is to be fattened he requires about four and a half per cent. of his weight daily in nutritious food.

Comparative Value of Oxen and Horses.—A writer in the *Massachusetts Ploughman*, says: It is generally agreed that horses travel faster than oxen, and that on a farm consisting of plains and destitute of rocks, a pair of horses will do more on the plow and harrow than a pair of oxen. Horses will wear longer than oxen; that is, farm horses will last to wear till twenty years old, but oxen should not be kept half so long, though some work till they are fourteen. But after admitting so much, we may be allowed to say a word or two in favor of the practice of keeping oxen.

And first, as to the cost of the animals. Oxen of equal weight with the horses are bought for one-half price. Oxen are worth something after they are worn out in work—horses are not.

Oxen are not half so liable to disease as horses are. An insurer will ask four fold more for insuring the health of horses than of oxen. The gearing of oxen costs less by half than that of horses. A wooden yoke lasts longer than leather harness, and it is put on and off half the time.

Oxen are more patient than horses, and will carry a more even yoke.

They start a load better than horses, particularly in a snow path, where the runners stick to the snow.

Oxen can be entrusted with hired men at less risk than horses. They are soon taught to draw the plow, and are driven by the plow man without any reins.

We have not a large proportion of farms without rocks and stumps, and where the land is rocky there is no comparison between oxen and horses.

In regard to cost of keeping, there would be but little difference if both were kept on the same food. But many of our farmers keep oxen through the winter on coarse hay, straw and husks, which would hardly keep horses alive.

Whipping Oxen.—It is a cruel and generally a useless act of barbarism to whip oxen. The best drivers use the lash the least. It is surely a savage practice to apply the lash before inviting the animals to move by the proper words. Yet this is a very common practice of those who are not owners of the cattle. Proper driving is an important item in husbandry. The merciful man is merciful to his beast.

Sore Necks of Oxen from Working in Wet Weather.—To prevent it, occasionally rub a little tallow on the yoke and bows.

To Direct the Growth of the Horns of Oxen.—Scraping the horns of oxen on the inside will make them curve outwards, or *vice versa*.

To Prevent Unruliness in Stock.—See that the fences are always kept up, and never force animals to jump over bars or fence but partially let down.

Kindness to Animals.—The *American Agriculturist* very truly says: All the animals of the farm should be glad to see their owner, and in fact every other person who has to do with them. Man should be recognized as their best friend. Colts and steers particularly should be petted.

DISEASES OF CATTLE AND THEIR REMEDIES.

Nursing Sick Cattle.—If an animal, as well as human being, is not carefully nursed when sick—well taken care of—all the medicine in the world can do but little good. And, on the other hand, with good nursing, medicine is generally unnecessary. It is our opinion, formed from a good deal of observation, that in at least nine cases out of ten medicine, as commonly administered, does more harm than good.

Liniment for Swellings on Cattle.—Half an ounce spirits of harts-horn; one gill spirits turpentine; half pint sweet oil; one pint alcohol; two ounces gum camphor, dissolved in the alcohol. Mix. This is considered one of the very best.

Cure for Wens on Cattle.—Bathe thoroughly once in twenty-four hours with fine salt and cider vinegar. Put in as much salt as will dissolve. Continue the application until it effects a cure.

Or stir fine salt into tar until the mixture is the color of very dark sugar and apply it night and morning until cured.

Or make a salve of soot, spirits of camphor, turpentine and soft soap, in no very exact proportions, and apply three times a day, rubbing the wen thoroughly before and after each application.

To Cure Warts on Cattle.—Dissolve potash to a paste, cover the wart with it for half an hour, then wash it off with vinegar. It is said to be a sure cure for warts on man or beast.

The Remedy for Scurf or Mange on Cattle.—Curry and brush the parts affected well, to remove the scurf, then wash well with warm water and soap, and when dry rub with a mixture of hog's lard, sulphur and spirits of tar. Wash clean with warm water and soap, and rub with ointment every second or third day till well.

Remedies for the Horn Ail or Hollow Horn.—Cutting off an inch of the tail and turning the head first on one side and then on the other and pouring boiling water upon the lower horn until the animal dodges was once very much practiced. And some have poured a tablespoonful of British oil, or as much very salt butter melted, into each ear. Others pronounce it wholly an imaginary disease, and say that the sunken eyes, dry nose, cold horn next to the head and rough hair are only symptoms of cold or fever, are better remedied by giving a cathartic of epsom or glauber salts, sulphur or linseed oil, combined with ground mustard, ginger, red pepper or any stimulant aromatic.

Cattle that are kept in a comfortable stable in winter, and well cared for, will rarely be troubled with horn-ail.

Foot Ail in Cattle.—A correspondent of the *Albany Cultivator*, in response to an inquiry upon this subject, says:

I would prescribe as a sure remedy, spirits of common salt, (muriatic acid.) A teaspoonful, applied to the diseased parts once in two or three days, for half a dozen times, will cure its worst form, and a single application taken in season will often be enough. The milder form, or scratches, as it is often called, which often appears on horses as well as cattle, may easily be cured by application of pot fat, or lard well saturated with salt. The former is best.

Cure for Scours or Diarrhea in Cattle.—An English farmer recommends the use of acorn meal as a sure cure of diarrhea in horn-cattle, sheep and lambs, and young stock generally. He says:

I sent the dried acorns to the mill to be ground into flour, and, when I found symptoms of scour or diarrhea in my cattle, I ordered two handfuls to be mixed in a bran mash, and given warm immediately, and to continue it once a day until the disease disappeared. This proved a never-failing cure.

A writer in the *Country Gentleman* recommends Indian meal burnt until it is as brown as well-roasted coffee, to be given from one to two quarts at a feed twice a day.

To Cure Bloody Murrain in Cattle.—Cassius M. Clay, of Kentucky, says, salt, sprinkled on ashes, in tight troughs, kept always accessible to cattle, is almost a sure preventive.

Soft soap and molasses, one pint each, well mixed before giving, is a remedy well recommended.

An experienced correspondent of the *Ohio Cultivator* says, where cattle have access at all times to running water, they will not get the murrain. If any cattle are affected with it, remove them from all other stock, and let them be as quiet as possible. Rest and quiet will cure them, if anything will.

Cassius M. Clay recommends as a cure, lime slacked as if for white-wash, and says, as soon as the symptoms appear, give a full grown bullock from three to four pints of it at once. Remove the animal at once from the herd.

Pleuro-Pneumonia.—Mr. Charles S. Flint, Secretary of Massachusetts Board of Agriculture, says: The most moderate estimate fixes the loss by pleuro-pneumonia alone, in the British Isles, at ten million of dollars a year. Immense amounts of diseased meats are constantly offered and sold in the markets of England. More than nineteen tons were detected in the London market in one week, in the summer of 1862. One inspector of markets said that if he were called upon to exclude from market animals affected with contagious diseases, he must exclude two thousand animals out of Islington market on many a Monday morning. The effects of this diseased meat are already discoverable in the impaired health of those who consume it. The disease is highly contagious. The most distinguished veterinary surgeons in the world now agree on this subject.

To spread from animal to animal, says the *New York Tribune*, there must be actual contact between the healthy and diseased, or with some infected article, such as straw, manure, clothing, or fodder. The

remedy then, is very plain. As soon as the disease is discovered in a herd, separate the sick from the well at once, and keep them so separated that the contagion cannot be communicated.

Dark, close, damp and dirty stables, marshy pastures, and exposure of a beast unsheltered to the vicissitudes of an American winter, feed and spread not only pleuro-pneumonia but other diseases to which cattle are subject.

The *New York Herald* recommends as an antidote to burn tar frequently in the barn or shed two or three times a day, and let the cattle inhale it, but not too close; let them lap freely of salt every other day; dissolve chlorate of potassa in water, wash their nostrils and mouth and rub them all over with a coarse brush wet in the same; sprinkle chloride of lime in and about the stables; give the cattle a few onions if they can be procured, and plenty of sound vegetables and fresh grass and water; no hay if it can be avoided.

A writer in the *Cincinnati Gazette* says: Inoculation, by taking the virus or matter from the lungs, and inserting it in the end of the tail of healthy animals, is reported as a good safeguard against the contagion, or if the disease should be contracted, it will be in the mild form, from which recovery is pretty certain. But this should not be relied upon until well tested in this country.

Dawson Hunt, writing to the *American Agriculturist*, recommends as a preventive: Tartar emetic forty grains, nitre forty grains, digitalis powder ten grains—mix; give in a bottle of cold water after fasting. Give the full dose to an animal three years old, two-thirds to a two year old beast, and one-third to a yearling.

The symptoms of the disease are described as, loss of appetite, hanging of the head, and as the disease progresses, an extension of the head; bright and watery eye, mouth dry, breath hot, breathing quick, with more or less agitation of the flanks, with occasional cough, always dry; more or less thirst; horns and ears hot. The quick and occasional cough, coupled with great prostration of strength, more particularly mark the progress of the disease. The ear applied to the side of the animal readily detects the impediment to a free circulation of air through the lungs, from the violent congestion that exists.

Chronic Inflammation of Liver in Cattle.—Dr. Dadd prescribes powdered iodide of potassium, two drachms; powdered golden seal, four ounces. Mix. Divide the mass into six equal parts, and give one in little water every morning on an empty stomach. Continue some time.

Remedy for "Buckeyed Cattle," Diseased from Eating Buckeyes.—To a pint of whisky add a tablespoonful of ground black pepper, and give in one dose. If no improvement is noticeable in half an hour, repeat the dose. If the case is very bad, three doses may be necessary.

"Witch Balls."—Cattle frequently in eating grass where animals have been killed or died take quantities of fine hair into the stomach, the natural tendency of which is to become felted together and massed into one or more hard balls, which were, in the days of New England witchcraft, called "witch balls." These balls sometimes accumulate until larger than goose eggs, and often cause death.

Cattle Licking Paint.—Benjamin Treat, of Southview, Connecticut, lost several cattle by their licking the paint from a newly painted barn.

To Remove Films from the Eyes of Cattle.—Finely pulverized earth occasionally blown into the eye through a quill is said to be sure.

MANAGEMENT OF SHEEP.

If a man wishes to buy young sheep, it is an easy matter to tell their age by their teeth. A sheep has eight front teeth, and when one year old they shed the two middle teeth, and within six months from the time of shedding, their places are filled with two wider than the first; at two years, the next two are shed, and in six months their places are filled with two wide teeth; at three years, the two third teeth from the center are shed, and their places filled with two wide teeth; and at four years, the corner teeth are shed, and by the time the sheep is five years old, the teeth will have grown out even, and it will have a full mouth of teeth; after that the teeth begin to grow round and long, and at nine or ten they begin to shed, and then is the time to fatten for the butcher, and let young sheep take their place.

If a farmer would have a good flock of sheep, he must keep a few of his best ewe lambs to take the place of his old sheep. Poor nurses should not be kept. The same ram should not be kept with a flock more than one year; neither should he be used in the flock that he was raised from.

Sheep to be healthy should not be kept in low, wet pastures. To have a good flock of sheep, they must be well fed summer and winter.

To make sheep peaceable and contented, never allow them out of the pasture intended for them to run; but if they should happen to get out, return them immediately, and make the fence sure. Sheep should be taken to the field as soon as harvest is done, as their droppings are worth as much to the field as the grass they eat, and they will thrive much faster in the field than in the pasture. Sheep should never feed their pasture so close but that a horse or colt would find plenty to eat with them; but cows should never be allowed to go in the sheep pasture. To tell whether a sheep has a heavy fleece, put your hand into the wool, and if you can easily shut it, the sheep has a small fleece; if you get your hand full, it is a heavy fleece. Rams with no horns are most desirable, if other qualities are the same, as they are not so apt to injure the ewes.

Size of Sheep for Profit.—The Hon. Geo. Geddes, of Fairmount, N. Y., has long been of opinion that sheep of a moderate size were more profitable than the large breed, particularly if kept more for wool than mutton. He says:

“The principle involved I think is this: The yield of wool is in proportion to the surface sheared, while the sheep consumes food in proportion to the weight of the animal. This, I think, is the general rule—not true of every individual sheep, but true when applied to flocks. We know that two sheep weighing 150 pounds have more surface to bear wool than one sheep that weighs 150; and if a man has a flock of 100 sheep that weighs 10,000 pounds, and another man has a flock of 133 sheep that weighs 10,000, the food required will be same, according to the German experiments,) while the wool of the 133 sheep will be 638 pounds, and the wool of the 100 sheep will be only 470, as deduced from the tables of the Messrs. Sweet.

Production of Sexes among Sheep and Cattle.—The sex depends on the greater or less vigor of the individuals coupled. This has long been known and acted upon. Careful observation and experiment has also shown that more males are born among the first and last births in a flock reared by a single ram, than among lambs born in the intervening period. Vigor in the male tends to produce males, but more from the weaker than the stronger ewes; and the opposite fact in regard to females tends to keep up the equilibrium, and secure the perfection and preservation of the species, by confining the reproduction of either sex to the most perfect type of each respectively.

Some couple a young ram with old ewes, if female offspring be desired, and an old ram with young ewes, if male offspring be wanted.

Sheep Shedding Wool.—*Feeding Sheep*—The best plan to keep the

wool on sheep, says Mr. Lewis Clark, in the *Wisconsin Farmer*, is to keep them *fat*, and if sheep "run down" from any cause, and are fed high at once, their wool will start. Even a change of pasturage from a poor to a timothy and clover pasture, will start the wool from a lean sheep. But the feeding of corn, beans, wheat, rye, barley, oats, vegetables, or anything that sheep will eat that makes *fat*, avoiding sudden changes, will not only cause the wool to stick, but will increase it more than enough to pay the additional cost.

Says the *New England Farmer*: We have some acquaintance with a purchaser of wool, who was called upon by a farmer who had about twenty fleeces of wool for sale; some of them were Cotswold and Leicester cross—others were nearly pure merino. The long wool about an inch from the bottom of the staple was cotted, the bottom being perfectly free. The merino not being so apt to cott was very weak at that point, the wool being well grown up to the place already described. The purchaser made this remark to the farmer: "You have an excellent pasture; your sheep came up in the fall in an excellent condition; but you put them upon very poor feed as soon as they got into winter quarters; you feed them upon nothing but very poor hay till near lambing time, then you improved their feed to a considerable degree and continued it till they were turned out to grass." The man at first denied the whole, saying that the sheep were well fed through the whole of winter. The purchaser, however, firmly maintained his position, offering to send a man to make inquiries of his hired man. When he found a further denial was of no avail, he asked very earnestly, "How did you know all about it? You were not there to see." The purchaser of the wool showed him how every fleece was affected just at the same point of growth, and how seriously it had injured his wool, besides materially lessening the weight of the fleece. As the feed was improved the wool begun to grow free again, leaving the cott considerably up in the staple. A similar result is sometimes caused by sickness; but in this case every fleece being alike affected, and at the same place, it was conclusive evidence that it was caused by poor feed.

Lieut. Gov. Brown says: There is no hay equal to well made clover, both red and white, for feeding sheep.

Fattening Sheep in Winter.—Keep them in a dry place, says Jonathan Kitson, of Howard, C. W., and let them have plenty of good clover hay and turnips, with half a pound of oil cake and a pint of barley per day. Water daily. I have fattened them in this way in a short time, and I think this is the best way of fattening them in the winter

Water for Sheep.—There are some farmers who entertain the opinion that sheep do not need water in winter. Others think if the sheep need any water, they can satisfy their thirst by eating snow! That sheep need water there can be no doubt. In Mr. Lawes' recent experiments, the sheep were allowed all the water they wanted, and those fed on hay alone drank, from February 22d to March 22d, on an average, thirty-three pounds of water per head per week. The next month, they drank forty pounds each per week; the next month, forty-five and one-fourth pounds; the next month, thirty-nine and one-fourth pounds; and during the whole period of seven months, each sheep drank on an average forty and one-fourth pounds per week.

Early Shearing of Sheep.—An Ohio wool grower remarks as follows: We shear early, from the fact that from several years' experience we have found that sheep thrive better, and will clip annually a little more wool, than when shorn late. It may be asked why sheep shorn early will clip more wool than late shorn sheep? My answer to this is, that an All-wise Providence has constituted everything, animals as well as human beings, to adapt themselves to the circumstances in which they are placed. Hence, when the weather becomes warm, and the fleece becomes burdensome, nature goes to throw off this unnecessary amount of clothing. The first indication of this will be seen on the belly, then the legs and about the face, and it is no unfrequent thing before shearing time to see an animal nearly naked. On the other hand, if the sheep are shorn early, they for a while require more protection, and nature brings every power into exercise to supply the demand. Many wool growers in Vermont have practiced early shearing for a few years past, and I believe it is generally conceded that it is the better for the sheep than the old practice of late shearing. The only objection that is made is, that wool buyers are afraid to buy unwashed wool, and will sometimes take advantage of them.

Shall Sheep be Washed?—Wool undoubtedly needs cleansing before it can be used in the manufactory, but it does not follow that it must be washed while on the sheep's back. There are many reasons why it should *not* be—few if any valid ones for a continuance of the practice. The best washing will only remove part of the foreign matter from the fleece. The manufacturer subjects *all* wool to a cleansing process, whether it has been previously carefully washed, or only "soused" in a slovenly manner. Sheep washing is violently unnatural. No animal dreads the water more, and with good reason; it requires days of warm weather to evaporate the moisture held in the meshes of a

thick fleece of wool, and the animal not only suffers discomfort, but frequently positive injury. It is comparatively an easy process to remove the yolk and dirt from wool when sheared from the sheep, but impossible to complete the work while upon the back of the struggling animal. It would be just as wise, and little less humane, to give children an occasional plunge to remove stains and soils from their garments. But for the washing, the sheep might be sheared one or two weeks earlier in the season, which would promote heaviness of fleece, and add to the comfort and thrift of both sheep and lambs.

The great objection urged against shearing unwashed sheep is, that an unwarrantable deduction in the price of the wool is made by manufacturers. The remedy for this is with the producer. He has only to remain firm in a reasonable demand, and in time his terms must be acceded to. There is a very just cause of complaint in the practice pursued of buying wool according to a general average of cleanliness, instead of fixing the price according to the actual condition of each lot. This has in effect been to offer a premium for neglect, and many clips of professedly washed wool have been little superior in cleanliness to unwashed fleeces from sheep properly cared for. Producers should in every case insist upon selling their wool according to its own merits, and this can as easily be done with the unwashed article as any other. To change the present practice will require general simultaneous effort, and this can scarcely be expected without considerable discussion. It is here intended only to indicate some of the leading points that seem to make the change desirable.

Objects in Growing Sheep.—In sheep growing there are three distinct sources of profit sought, viz: increase of number by natural propagation, growth of increase in size and weight, and annual product of wool. The fattening of sheep for mutton exclusively constitutes a branch of business by itself.

To Manage Sheep.—Put a bell on a muley heifer, one or two years old, of white or roan color, and let her run with the sheep. They will become mutually attached to each other, and she will greatly assist in keeping the sheep together, also in driving them, especially across streams.

Care of Sheep.—One of the cares of sheep, most important for their health and comfort, is tagging, and this is most often neglected. Probably the only attention ever given to this matter is at shearing time, and we have seen, even then, sheep sent off out of the shearer's hands with the tag locks untouched. If there is anything in farming more slovenly than this, we don't know what it is.

Marking Sheep.—Dry Venetian red is said to be the best paint which can be used for marking sheep. It combines with the oil of the wool, and cannot be easily removed.

To Test the Quality of Wool.—Take a lock of wool from the sheep's back and place it upon an inch rule. If you can count from thirty to thirty-three of the spirals or folds in a space of an inch, it equals in quality the finest Electoral or Saxony wool grown. Of course, when the number of spirals to the inch diminishes, the quality of the wool becomes relatively inferior. Many tests have been tried, but this is considered the simplest and best. Cotswold wool and some other inferior wools do not measure nine spirals to the inch. With this test every farmer has in his possession a knowledge which will enable him to form a correct judgment of the quality of all kinds of wool. There are some coarse wools which experienced wool growers do not rank as wool, but as hair, on account of the hardness and straightness of the fibre.

Rules for Selling Sheep.—The character of a flock depends very much on the practice of the owner in making sales. Never suffer a purchaser to take the pick of your flock, but do the picking yourself. Try to pick when you buy—be sure and pick when you sell.

DISEASES AND REMEDIES.

Cure for Scab in Sheep.—Wash the parts affected with a pretty strong decoction of tobacco, and repeat every two or three days until the skin of the animal resumes its healthy state. It is said to be a sure cure.

Another.—The following remedy has been found effective at the Cape of Good Hope, and is used by some very large flockmasters. It is a wash of tolerably strong ley, made of wood ashes, strongly tintured with aloes. The ley is kept boiling in a large kettle, and is dipped out into a tub from time to time to keep the wash at a right temperature. With two tubs and proper conveniences, five or six hundred sheep a day can be washed. The operator holds the sheep by the head, and takes care to keep the liquid out of its eyes, ears, and mouth. The sheep only remains in long enough to be sure that the skin is all wet, and the operation can be accomplished with a long fleece on the sheep, but not as easily as when it is short.

Stretches in Sheep.—It is said that sheep will have no stretches while their salt trough is supplied.

Remedy for Grubs in Sheep.—Take one quart of whiskey, and two ounces of yellow snuff, mix and warm to blood heat. Let one man hold the sheep, and another take a small syringe and discharge about a teaspoonful of the mixture into each nostril. Recommended to us to be a certain cure.

Scours in Sheep.—R. L. Allen, in his Treatise on Domestic Animals, says: Change of food; light diet; warm dry shelter; are remedies. If very severe, or long protracted, a dose of castor oil, and after its operation, three grains of opium with one ounce of chalk, and then keep them on dry food. If slight and of a mild form, wheat bran or shorts, and oat meal, or flaxseed gruel, are both good. Fresh boughs of the juniper, or pine and hemlock, help to check the disorder.

Remedy for Scours in Lambs.—Take the seed of the common dock, make a strong decoction, sweeten with loaf sugar, add half a teaspoonful of Cayenne pepper to a quart; give to each lamb a wine-glassful three or four times a day, until a cure is effected.

RAISING AND FATTENING HOGS.

A writer in the *Valley Farmer* gives some good rules for the management of swine, as follows:

A sow should not bring forth a litter of pigs before she is sixteen or eighteen months old. She is then fully grown, and her pigs will be worth keeping. If she is allowed to breed sooner, it will retard her growth, and nursing a litter of pigs will reduce her still more, and she never will become of so large a size as if allowed to mature before breeding.

A boar should not be used till he is at least one year old. He should be kept by himself till this age, and should afterwards be kept alone, except when his services are needed. When this process is followed we shall begin to improve our swine, and not till then.

Suitable pens should be provided for sows in which they should be put a couple of weeks before they are expected to bring forth a litter. A dry place should be selected, and some dry, light material furnished for the bed. Dry leaves are excellent for this purpose. Never have more than one sow in a pen with her pigs. If there should be two or more sows together, it will be a sacrifice of many of the pigs. The

pigs should be confined to the pen, for if they can get out with other sows having younger pigs, they will take the milk from the sows at the expense of the younger pigs.

Hogs are fond of charcoal. They will eat it nearly as greedily as they do corn, and it is very healthful for them. Sulphur fed to hogs occasionally is also beneficial in keeping off disease, and removing lice, if they are troubled with them. Stone coal, wood coal, and ashes, will also be eaten, if placed within their reach.

To be successful in raising hogs, care should be taken of them. Their sleeping apartments should be kept dry and warm, with plenty of comfortable bedding. It is also highly beneficial to rub or curry hogs as we do horses, and it does them as much good as horses. The pens should be kept clean, and divided off so that there is a place for sleeping, a place for feeding, and a place for their evacuations. The hog is naturally a clean animal. If a little pains is taken, it will keep clean—never making its sleeping apartment filthy.

Every one that keeps hogs should have a hospital for those that show any signs of sickness or unthriftiness. By a hospital, I mean a warm, dry place in the barn or stable, where they can be put and seen to—fed in a proper manner—medicine mixed with their food, &c. If an epidemic is prevalent, it may be frequently arrested by removing immediately those which show any signs of sickness.

The *Maine Farmer* says: "It is quite common to breed from young sows, say fall pigs, to come in with a litter of pigs when one year old, a practice to be utterly condemned, and if continued in the same family for a few generations of the swine, they will be found to dwindle down from three or four hundred hogs to two or three hundred. It is much better to keep the sow three or four years, or even much longer. They have been kept some fifteen years to advantage. The hog is some years in his natural state in maturing.

A correspondent of the same paper says: For breeding sows, select a pig with twelve or fourteen fully developed teats—never less than ten.

To Prevent Sows Killing their Pigs.—The intoxicating principle is generally adopted. The *Maine Farmer* says give about half a pint of good rum or gin. It is safe and reliable. A correspondent of the *Country Gentleman*, says: Instead of using ardent spirits, we prefer giving hard cider.

Keeping Hogs Clean.—It is very generally supposed that hogs thrive best when they are freely allowed to "wallow in the mire" and remain as damp and dirty as possible. This is an erroneous notion.

Various experiments have proven conclusively that hogs when kept clean, warm and dry, thrive best and are most easily fattened: They should be kept in well shaded, dry and clean pens, and they should be fed regularly three times per day.

Teaching Pigs to Eat Slow.—A correspondent of the *New England Farmer* says: Pigs should be early taught to eat slowly, for the advantage of the pig, as well as of the owner. Nothing is easier. Give the weaned pig, at six or eight weeks old—in a clean trough—half a teacup of dry shorts or bran, and after his dry food is all eaten, give his drink, and increase the dry food according to the age and appetite, till three months old; and then add one-half Indian meal for two months, and then dry Indian meal, till fattened sufficiently. This plan has been followed for five years with decided success.

Pigs and Pork.—"Keeping pigs eighteen months to fatten them the last three, is not a paying business. Feed a decent pig *well* from weaning until eight months old, and you will get two hundred and fifty pounds to three hundred pounds of pork—and you do not usually get fifty pounds more for those ten months older. There can be no question but an animal can *consume* much more to produce in eighteen months about the same quantity of meat, which is made by another in half that length of feeding. If the object of raising a hog is to *make pork*, that end should be kept steadily in view—his swineship should see it, and eat for it." This is our view exactly. Winter none but autumn pigs, keep them in pens, and always growing. "To keep a pig growing, one must keep him eating and eating about all the time. To do this there is nothing like 'change and variety,' now a little corn, then a little milk, a few boiled potatoes, a few raw apples, now a pudding, then a dish of greens—anything to keep them eating and stuffing when awake, even if it does require a little extra attention."

Fatten Hogs Early.—The *Boston Cultivator* says: We have used this caption, or its equivalent, on former occasions. It has been brought to mind by reading an article from the *Ohio Farmer*. He first "bagged down" (in western parlance) forty acres of corn, between the 19th of September and the 23d of October. By the hogs being weighed when they were turned in and when they were taken out, it was found that they paid forty cents a bushel for the corn, estimating the pork at four cents a pound and corn at forty bushels to the acre.

His next course was to take one hundred hogs, averaging two hundred pounds each, which were placed in nine covered pens and fed all they could eat of corn and cob ground together, steamed, and given in

allowance five times a day. In a week they were again weighed, when reckoned seventy pounds of corn and cob as equal to a bushel of corn, and the pork as before, the hogs paid eighty cents a bushel for the corn. The weather was warm for the season.

The same experiment was tried again the first week in November, when the corn brought sixty-two cents, the weather being colder. The third week in November, the corn brought only forty cents, and the fourth week it brought but twenty-six cents, the weather continuing to grow colder. Another lot of hogs were fed through December, which only gave twenty-six cents a bushel for the corn. A part of the time the temperature was at zero, and the hogs only gained enough to pay five cents a bushel for the corn, and afterwards, when the mercury went down to ten degrees below zero, the hogs only held their own.

The inference from these trials is, that in general it is not profitable to feed corn to hogs, after the middle of November. The difference in grain is certainly surprising, and whether caused altogether by the difference of temperature, or not, no person of observation can doubt that hogs gained much more in proportion to the food consumed, in mild than in cold weather. It seems that the hogs gained much less by helping themselves to corn in the field, and when the corn was ground and cooked, and fed to the animals in pens, under equal advantages of weather.

Cooked and Uncooked Food.—Cassius M. Clay, the noted stock breeder of Kentucky, has experimented a good deal in feeding cooked and uncooked food for his stock.

Mr. Clay's experiments show, that to make pork on dry corn, one bushel gave in one instance, a gain of five pounds and ten ounces. In changing the food, on the same animals, to boiled corn, one bushel produced a gain of fourteen pounds and seven ounces, and a bushel of corn ground and cooked, gave a gain of sixteen pounds and seven ounces; while in another instance, after a change from dry corn to cooked meal, the gain upon one bushel was but a fraction short of eighteen pounds.

These experiments then show an average gain of about three pounds when the animals were fed on cooked food, to a gain of one pound when fed on dry corn. Or, to reduce the comparative cost of the gain per pound, estimating the corn at twenty-eight cents per bushel, the following are the results:—When the hogs were fed on dry corn, the average gain cost a fraction over $4\frac{1}{2}$ cents per pound. The same animals, when fed on cooked meal, the gain cost a fraction over $1\frac{1}{2}$ cents

a pound, or when fed on cooked corn, unground, the gain cost 1 cent and nine mills per pound, leaving but four mills, or less than half a cent per pound in favor of cooked food, or allowing but four mills per pound for grinding, exclusive of the greater time required to cook whole corn, over that which is ground. But to come to the point more definitely, we will reduce the price of the corn to twenty-five cents per bushel, (which is as low as may now ever be expected, except, perhaps, in some remote quarter,) and reduced the gain from two-thirds to one-half, for the difference between cooked and uncooked food, which will be equal to twelve and a half cents on each bushel of corn fed out, and see how the question will stand.

From experiments made by a man in Illinois it was shown that fifty pounds of corn, whole and raw, will make ten pounds of pork.

Fifty pounds of corn, ground, will make fifteen pounds of pork.

Fifty pounds of corn, ground and fermented, will make seventeen pounds of pork.

Fifty pounds of corn, cooked and fermented, will make twenty-one pounds of pork.

William Van Loon, writing to the *Prairie Farmer*, says that he has practiced feeding boiled corn to his stock and hogs, and is "satisfied that he saves half his grain, and gains as much more in time;" that one bushel of corn on the cob boiled, will produce as much pork as two fed raw, and in half the time. In one experiment he fed three bushels of boiled corn per day, to twenty-seven hogs for ten days. The average gain was two pounds per day. He then fed the same lot of hogs on three bushels of raw corn per day for twenty days; they gained a mere trifle over one pound per day. These were small young hogs—larger ones would have fattened better.

How Much Pork a Bushel of Corn will Make.—With care in breeding from a good stock of hogs, and with proper management throughout, keeping the hogs constantly thriving, at least an average of fifteen pounds of flesh may be received from every bushel of corn consumed. A few well conducted experiments in feeding, with appropriate apparatus for preparing the food, compared with facts determining the amount of grain from the ordinary method of feeding, would forever settle the question, and lead to valuable improvements in this most important interest to farmers, especially in the west.

In England bean meal is extensively used for fattening hogs.

DISEASES OF HOGS AND REMEDIES.

MORTIFYING as the fact may be to human pride, it is nevertheless certain that in their internal organs and general structure, the hog and bear more closely resemble man than any other animal. Most of their diseases, as might be expected, closely resemble those of the human species, and require similar treatment.

The diseases of swine, though not very numerous, are very dangerous, and soon run their course.

Hog Cholera.—The *symptoms* as described by Jas. Higgins, state agriculturist, chemist of Maryland, are first a laziness on the part of the animal affected; some experience a slight loss of appetite; a kind of husky grunt approaching to a cough; sometimes a slight purging of the bowels, and a yellowish colored urine; then the animal would become more weak and seem to be paralyzed in the small of the back, totter about for a short time, and finally lie down and die.

Remedy.—Drench with a *strong* solution of alum, and mix pulverized alum in their food as you would salt. A rope behind the tusks and a horn with the small end sawed off, are convenient for administering it.

A writer says: Last May my hogs were attacked with hog cholera, and upon mentioning it to a friend, he spoke of a suggestion published in a Cincinnati paper, advising the use of alum. I procured some, made a strong solution, all the water would bear, and drenched all I found with the disease upon them, and gave to the lot (about 100 head) a pound of pulverized alum in some mill feed each day for two weeks, by which time all remaining seemed healthy. Out of twenty-two drenched with one pint of the solution to each, administered with the assistance of a rope behind the tusks, and a horn with the small end sawed off, I lost five head, and, with the exception of two, the remaining seventeen appear to have entirely recovered to a healthy, thrifty condition. Some of those which have recovered, were in the last stage, vomiting, with red blotches on the skin, and bleeding at the nose, which I have always considered the last stage of the disease. The above is but little cost, and if it is as successful as with me, is well worth the trial.

A letter from a farmer in Indiana prescribes copperas as a remedy for hog cholera, and states his own experience of a favorable result. He boils corn in copperas water, and feeds it to the diseased animals.

Another remedy that has been recommended to us in the very high-

est terms is, four pounds sulphur, four pounds madder, two pounds saltpeter, one pound black ammonia, Mix together, and give a tablespoonful two times a day in milk, gruel, or anything they will eat it in. Should they be too far gone to eat, drench them with it. The author of this says it is worth more to farmers than the price of our entire book.

Blind Staggers in Hogs.—This is one of the most dangerous diseases to which swine are liable. The first symptom is a manifest uneasiness on the part of the pig; he will lay down for a minute or so, and then get up; walk about for a short time, and then lay down again. This will sometimes continue for eighteen or twenty hours. I know of but one instance where it lasted more than twenty-four hours. After a short time, the disease becomes more violent, the animal rears on its hind legs, foams at the mouth, grinds its teeth, and is to all appearances blind. Bleeding, if resorted to early in the disease, followed up with a light dose of castor oil or epsom salts, will give relief.

The Kidney Worm.—This disease is often fatal. The first symptom is a weakness of the loins and hind legs, and, if not checked, is followed by a general prostration of the whole body. As soon as the first symptoms appear, copperas, given at the rate of quarter to half tablespoonful daily for one or two weeks, will generally effect a cure. Spirits of turpentine rubbed on the loins is very good.

One teaspoonful of copperas, dissolved in warm water, and given once every alternate day for a week, is said to be an excellent remedy for worms in the hog.

The Mange, or Itch.—This is not dangerous, but a "mangy" hog will never thrive. Soap suds, well applied with a good stiff scrubbing brush, is a remedy; a running stream to wallow in, or plenty of clear wheat straw, will effect a cure in time.

For coughs and inflammation of the lungs, bleeding is resorted to, followed with light doses of some purgative medicine, and one, or half, (according to size,) drachm of nitre.

A good warm bed, with plenty of straw, is a preventive for all the diseases to which a pig is liable.

Hogs are bled inside of the fore arm, just above the knee, or else in the roof of the mouth.

MANAGEMENT OF POULTRY.

Maxims for Poultry Keepers.—1. It is not advisable to keep large numbers of hens together, or go into the poultry business on a large scale. It is found unpracticable and unprofitable—besides they cannot be kept in so healthy a condition as where but few are together.

2. It is impossible to keep hens to advantage without having a suitable and properly arranged house for their accommodation. This is as necessary as that a farmer should have a stable for his cattle, or a dwelling for his family.

3. In connection with the house, a poultry yard should be provided, which should contain a grass plot, gravel, some quantities of slacked lime, and dry ashes.

4. The inside of the poultry house should be whitewashed twice a year, or oftener, which will serve to keep it free from vermin, and the hens will be kept in a better condition.

5. Pure water in sufficient quantities must be provided several times a day, in winter and summer.

6. Feed should be given at regular periods. To fatten fowls, they must not be allowed to run at large.

Preparation for Spring.—During the cold weather a warm house and plenty of good food is sufficient. But with the rains of early spring especial care will be needed to keep their quarters dry and clean. These are essential to the health of the fowls, and unless secured very few eggs can be expected. A thorough cleansing should be given to the roosting poles, the nest boxes, and every other part of the poultry house and yard. Give the floors a fresh coating of gravel, or some substitute, such as rubbish from an old building, broken bricks and mortar. This floor should be spread with fresh straw at least once a week, and where many fowls are kept, every morning. This will keep everything clean, and secure the health of the fowls.

The nest boxes will be located most nearly in accordance with the natural instincts of the animal, if placed on or quite near the ground, in a cool, sheltered spot. Many kinds are now beginning to lay, and they should have every facility, as early fresh eggs command the highest price.

To enable the fowls to keep themselves free from lice, the *Michigan Farmer* recommends that a flat box that will hold a good quantity of ashes, into which has been thrown a handful of sulphur, should be provided for the fowls. They may be fed ever so well; but if not

afforded facilities for keeping themselves clean, they will not thrive.

Regular and moderate feeding is considered better than leaving them all the food they can eat constantly within their reach. "Give them what they will run after at regular times," is a maxim of the best poultry breeders, and to this we add: Recollect that six fowls well kept will afford more satisfaction and better returns than two dozen shifting for themselves, without room and without care.

Profits from Poultry.—At a late discussion by the Concord Farmers' Club, as reported in the *New England Farmer*, J. B. Farmer remarked, as follows: Last year he had twenty hens, and raised one hundred and fifty chickens; did not know how many eggs; his hens cost him half a cent per day. This year he had thirty hens; in January he had fifty dozen eggs; he got thirty cents per dozen. Bought one hundred and fifty pounds of beef, and kept it by them while it lasted; he pounded up the bones; the hens eat pounded bones greedily. He gives them warm dough once a day in cold weather. If we keep hens for the eggs only, he thinks the Poland or Black Spanish or Bolton Grays, are better than the larger breeds. It is more profitable to raise chickens; his hens range over a ten acre pasture; he keeps scraps by them. Hens should be treated gently; hens that are perfectly tame will lay twice as many eggs as wild ones. He thinks hen manure better than guano; last year he had enough to manure three acres of corn in hill.

Productiveness of Fowls.—The Springfield (Mass.) *Republican* says: Fowls commonly decrease in laying properties after their second year. The estimate for the yield of a good laying hen the first year is one hundred and fifty eggs, the second year one hundred eggs, and the the third year fifty eggs. Continual laying debilitates a fowl, hence good layers are often poor setters, and the worst fatteners.

By experiments in the zoological gardens of the Bois de Boulogne, it appears that the Asiatic breeds of Nankin and Brahma-pootra are the best layers; the French Creveceurs come next; the Houdans third; the La Fleche fourth; and after them the Dorkings and a Dutch breed. The Nankins and Brahma-pootras are also remarkably precocious; and, according to some breeders, they begin laying in February, and keep on almost to the end of the year.

It is a mooted question whether a hen ever lays more than one egg a day. John Whyman, of Lockport, N. Y., says he obtained twelve eggs in one day from six Black Spanish hens. They were fed upon soft sugar corn. Does any one else know of a similar instance?

To Make Hens Lay.—Boiled oats, fried in fat, have been recom-

nended for laying hens as the very best food for productiveness of eggs.

A lady who keeps poultry says, that, to cause them to lay regularly, she gives them with their food, every other day, a teaspoonful of Cayenne pepper to each sixteen hens. She gets daily from that number of hens twelve to fourteen eggs.

A writer in the *Homestead* says: A change of diet is very essential to the well being of the biddies. Variety is the spice of life, with fowls as much as with men; and they should have an assortment of food given them applicable to their wants. Corn and cob meal is, on the whole, preferable to a constant use of more solid grain or meat, in either making hens lay, or for the accumulation of flesh. Potatoes and bran are an excellent dish for them; also cabbage heads, chopped up and added to their dough; in fact, any kind of vegetable substances are good for them. Of the choice of grain for laying exclusively, oats should be furnished them, with a mess of buckwheat now and then. Where they cannot procure gravel, sand or ashes should be liberally strewn over the bottom of their coops, and occasionally they ought to have some clam or oyster shells pounded fine and put into their food; bone meal is another good ingredient to give them, all going towards forming the shells of eggs; fresh meat, when conveniently to be had, might be added to the list of feed for the keeping of fowls.

How to have Plenty of Eggs in Winter.—Give the manufacturers materials to make them with, and a comfortable place to work in. Give them animal food to supply the place of insects they catch in summer, and then let them have a warm place to run into, with plenty of unfrozen water, not snow, and a frequent taste of green food, such as cabbage leaves, potatoes, &c., and remember to supply some gravel or their grinding mill, and lime to make shells out of, and we will warrant the animals to repay all the care and food, in nice, plump eggs—no matter what the particular breed may be. Try it.

A hen without some kind of meat, and gravel, and lime, compelled to eat snow for water, or go without, cannot make eggs.

I recently received a letter from J. C. Thompson, Esq., of Tompkinsville, Staten Island, in which he mentioned having a liberal supply of eggs throughout the month November, from his fowls, which were of the Brahma-pootra and Leghorn varieties.

Every poultry raiser knows how rare it is that hens lay liberally during that and the succeeding months of December, January, and February, and I made inquiry of Mr. Thompson in regard to his man-

agement of fowls, to secure such desirable results. In a letter written me on the 6th day of the present month, he said, in reply to my inquiry, "I have confined in one lot, thirty Brahma hens and pullets, and they have laid in this month, including to-day, (six days,) eighty-two eggs. In regard to 'how I managed to get so many eggs,' I will tell you what I do. Feed and *clean* water within their reach constantly, also shells or bones pounded, or old mortar; grass, cabbage, or other vegetables of which they are fond, boiled potatoes, turnips, or the peelings of them, and scraps from the table daily. The potatoes and turnips, boiled with coarse Indian meal, or corn and oats ground together, and fed cold, or partially so—*never hot*; scrap meat that comes from the tallow chandler's or pork butcher's in cakes, is good; make a hole, basin-like, into a cake, and fill it with water, which affords them drink and softens the scrap so as to make it palatable to them. When they have picked it to pieces, soak or boil the refuse with meal, and feed it the same as the potatoes, &c."

In addition to this, Mr. Thompson gives his fowls warm, clean, and airy quarters, as I know from observation. The concluding paragraph of his letter, quaint, though practical, is as follows: "Remember that hens are only *machines* for making eggs, and, like the mill for making flour, if the grain is not put into the hopper, the flour will not come out." As the grain is to the hopper, so is the feed, water, vegetables, lime, pounded shell, bones, &c., to the hens.

Mr. Thompson breeds but two varieties of fowls, the Brahmas and Leghorns, and those with great care and in their utmost purity. The latter were long his favorites, but he now considers the former, for all purposes for which domestic fowls are kept, superior.

For Hens that Lay Soft Shell Eggs.—Give a very little linseed oil two or three times a day, for a week or so. If the legs of hens become broken, they will lay their eggs without shells until the fracture is repaired, all the lime in the circulation being employed for the purpose of reuniting the bones.

To Prevent Hens Eating their Eggs.—The methods which have been recommended are rather contradictory. The first is, make their nests in nail kegs, half filled with straw. This furnishes a secret place for laying, but too confined to allow their eating their eggs while on the nest, and too far down to allow of their reaching them from the top of the keg.

The next is as follows: When hens eat their eggs it is often owing to the form of the nest. The proper form is that of a plate, shallow that she may not have to jump down on the eggs, and flat on the bot-

tom, so that when she treads on them they will roll aside, and let her feet slip easily between them. She can then pass her bill among them, as she tucks them under her, and shuffles them together with her wings without hurting them. If, on the contrary, the nest is made in the form of a basin, the eggs press against each other, and are liable to be crushed by her efforts to push her feet between them, or to alter her position with her beak or wings. When an egg is broken most hens will eat it, and, as hatching time approaches, the eggs become more brittle; and in deep or badly formed nests, the chicks are very apt to be crushed and killed between the other eggs, by the movements of the hen.

Another says: Take a half eaten egg, substitute ground mustard for the yolk and let them try that.

How to Set a Hen—Ireland, like China and France, is a great country for hatching chickens, consequently good practical information should be expected from such a source. A correspondent of the *Irish Country Gentleman* writes: When a hen of any description is to be set with eggs, the place ought to be well cleaned out, and a nest made of some clean straw. Some give eleven eggs, others thirteen, and even more, according to the size of the hen, yet in most cases she will manage eleven eggs best; but let the lot consist of an odd number, and be all about the middle size. Carefully examine every egg, by holding it up betwixt you and the sun or candle, so that the tread, so called, if present, may be seen, if not visible the egg must be rejected; reject also those that have a circular flaw, which is indicative of a double yolk. Should a given number of cockerels only be wanted, the male and female are known by examining the egg in the same way; such as have a "tread" or vacuum directly on the top of the egg will be a cockerel, and those on the side of the top pullets. The hen should be provided with oats and water when hatching, with liberty to leave the eggs a little, if inclined. If she becomes affected with lice, &c., a little flour of brimstone may be shaken upon both her and the nest.

As a hen brings forth the young of her own species in three weeks, or twenty one days, she must be watched regularly to see if all goes on right, as sometimes the young require a little assistance to get out of the shell; this, however, is seldom necessary, and in nine cases out of ten it is better to let nature take its course; but the shell that the young have left ought to be instantly removed, as also any visible rotten eggs, which will make a watery jumble when shaken. The eggs

must be as equal in age as possible, and the newer laid the better, as such are more certain.

Sex of Eggs.—M. Genin affirms, in an address before the Académie des Sciences, that he is now able, after having studied the subject for upward of three years, to state with assurance that all eggs containing the germ of males have wrinkles on the small ends, while female eggs are smooth at the extremities.

To Economize Time with Hens.—A correspondent of the *American Agriculturist* directs: Confine the first hen that hatches in a coop with her chickens, until another brood is hatched; then substitute the second hen for the first, relieving the charge of the former. When a third hen hatches, put her in the place of the second, with all three broods; if the aggregate number does not exceed thirty, a full sized hen will take good care of the whole.

Hatching Chickens by Steam.—A room has been prepared in Philadelphia for the hatching of eggs by steam after the custom of the Chinese. The establishment is about six hundred hen power.

Rearing Chickens.—Says a correspondent of the *Irish Country Gentleman*, when chickens first come out, feed for ten days with soaked oat meal and hard boiled eggs, afterwards groats and hulled oats: all kinds of soft meat should be avoided at this age; but plenty of clean water, which should constantly stand before them, placed in such a manner that the chickens cannot get into it. A bowl may be turned over in the middle of a pan of water. When rearing chickens never let them out too soon in the morning; avoid wet grass and rainy days, which generally bring on all diseases that gallinaceous poultry are subject to. It will be found that feeding poultry with the very best of oats is quite preferable.

A writer in *Wilkes' Spirit* recommends for chickens for the first week after hatching, a hard boiled egg, to be given, chopped fine, at least twice a day, wheat steeped in milk, and coarse Indian meal, bread, crumbs, etc.

Cure for Gapes in Chickens and Other Poultry.—Draw a flight feather from the wing, and insert it about one inch and a half in the wind pipe; turn it gently three or four times with the finger and thumb; withdraw, (turning,) when you will extract perhaps three small worms. Once doing is in general sufficient. This is an old and successful plan. The cause of gapes is these worms in the windpipe, and if this operation is rightly performed it never fails to effect a cure. The quill may be trimmed so as to form at the end a slim brush,

about an inch long, then passed down the wind pipe, and twisted round as you withdraw it.

Another method is to insert a loup of horsehair into the windpipe, twist it around and draw out to loosen the worms. The opening to a chicken's windpipe is a slit through the tongue.

The following restorative is excellent:—Take half a pound of sulphate of iron, one ounce of diluted sulphuric acid, dissolved together; when dissolved, put two gallons of spring water to the iron and acid, let it stand twelve or fourteen days, when it is fit for use. The dose to chickens is a teaspoonful to one pint of water for them to drink, given twice a week, or even thrice, and there will be no gapes.

Half a teaspoonful of ground black pepper for a grown hen, the dose diminished according to the age, has been considered a remedy. Ashes have also been recommended. Put the chickens into a barrel, have a bag of coarse cloth holding a quart or two half full of dry ashes, and shake it in the barrel until the barrel is filled with the dust, repeating two or three times in the course of an hour. It is said too that a small piece of assafoetida will cure it, and that a little in their water occasionally will prevent it.

Dough raised with milk rising is recommended as a sure and safe remedy, fed while fermenting, but while still sweet. To cook their meal, and give but little for several days after they are hatched, is said to prevent it. Feed little or none on corn dough, but feed plentifully on cheese made of lobbed milk or clabber, crums of wheat bread and corn bread, is claimed to be a perfect remedy. The following has been recommended: Cracked corn, (chicken feed) four quarts; four quarts coarse wheat bran; scald the meal and bran at the same time; add two tablespoonfuls of good wood ashes, sifted, also one tablespoonful of best ground black pepper. Mix and feed once every three hours to chickens and turkeys alike.

A teaspoonful of Cayenne pepper, mixed with a saucer full of Indian meal and water, for one or two dozen chickens, is said to be a cure. For young turkeys, we have heard a few drops of sweet or lamp oil recommended, to be followed with a strong solution of alum.

Mr. Bergen stated before the New York Farmers' Club that the common cause of this very fatal disease is the feeding of chickens with freshly wetted Indian meal; the meal swelling in the stomach. When this food is given to chickens, the meal should be mixed with the water several hours before it is eaten. Some one has suggested that a dough, made by mixing Indian meal with urine, will cure this disease.

Fattening Poultry.—We know no better authority on this subject than Mr. C. N. Bement, who says: Chickens intended for market should be separated from the older fowls, and confined in more restricted quarters, and fed liberally with a variety of food, of which grain of some sort should form the basis. They should be regularly fed three times a day—the first time as soon after day-break as possible or convenient.

It is hopeless to attempt to fatten chickens while they are at liberty and growing; they must be confined, and during their confinement they must be supplied with abundance of pure, fresh water, gravel, old lime mortar, crushed bones, or broken clam or oyster shells, if to be had. In about three weeks they will be in condition for marketing.

It is equally hopeless to attempt to fatten older fowls unless confined in a proper coop; and this, like most other appurtenances, need not be expensive. To fatten a dozen adult fowls, of common size, a coop may be made three feet long, eighteen inches deep, made entirely of slats, open on all sides, top and bottom. Discretion must be used, according to the size of fowls cooped. They do not require much space; indeed the closer the better, if they can all stand up at the same time.

Fowls selected to fatten should be in good health; one diseased fowl might contaminate the whole; besides if there are any that seem inclined to be quarrelsome they should be removed at once. Quarrelsome fowls will not fat kindly. Care must be taken to put up such as have been accustomed to be together, or they will fight, and like other bad examples, it soon finds imitators.

The food should be ground oats, Indian meal, mixed with water or milk; the latter is the best. It should be slaked, forming a pulp or paste.

The food should be varied; barley, buckwheat and wheat screening; boiled or baked potatoes form excellent fattening materials for fowls.

Regularity when fed should always be observed in the hours of feeding, also in the quantity of food given, not to surfeit them one day and starve them the next, but give the fowls their food as regular as you take your own meals. They must be well fed three or four times a day—the first time as soon after day-break as possible or convenient, and then at intervals of four hours.

No animal is easier kept than fowls. No kind of food comes amiss to them. When at liberty they obtain their living promiscuously, and

pick up everything that can be made use of as food in the barnyard ; even the worms, grubs and bugs give them the most nutritious food. And if insectivorous food is wanted, there is nothing perhaps more easily obtained, at almost any season, than by what the French term a *verminer*. Procure a deep crock, into which put some bran, and on it lay a piece of carrion or other flesh ; cover it with a glass cap so as to admit light, but exclude rain ; in a few days it will be a moving mass of living insects or worms, which may be thrown out to young poultry, young turkeys in particular ; there is nothing they will devour more greedily ; but they should be sparingly given, as the fowls are so fond of them, that if given abundantly it will prevent them taking their usual food.

We have practiced another method for fattening fowls which has proved successful. We confined a number of fowls, ducks and turkeys, in the month of November, in a small, dark room, only giving them light when feeding. By depriving them of light they were kept perfectly quiet, nothing to do but eat, drink and grow fat, spending most of the time quiet on the roost. Feed was kept constantly before them in a flat box, consisting of a mixture of corn, oats, barley and buckwheat, with pure, fresh water supplied daily. They were also provided with broken bones, oyster shells, gravel, and pulverized charcoal, of which they ate quite a large quantity.

A writer says : The cheapest and most advantageous food to use for fattening every description of poultry is ground oats. These must not be confounded with oat meal, or with ordinary ground oats. The whole of the grain is ground to a fine powder ; nothing of any kind is taken from it. When properly ground, one bushel of the meal will more effectually fatten poultry than a bushel and a half of any other meal. The greatest point in fattening poultry, is to feed them at day-break.

Another says : Poultry should be fattened in coops, and kept very clean. They should be furnished with gravel, but with no water. Their only food, barley meal, mixed so thin with water as to serve them for drink. Their thirst makes them eat more than they would in order to extract the water that is among the food. This should not be put in troughs, but laid upon a board, which should be clean washed every time fresh food is put upon it. It is foul and heated water that is the sole cause of the pip.

S. Edwards Todd, of Auburn, N. Y., directs for fattening poultry cheaply, so that it will be tender and juicy, to mingle equal quantities of wheat flour and Indian corn meal together, and wet the mass with

boiling hot water, and let the fowls have access to it all day. Also, let them have access to clean water and some boiled potatoes. Prepare a fresh batch for them every morning. By allowing them to have access to food at all times, they will consume less and fatten faster than they will to feed them several times a day. Fowls need food very often, and but little at one feeding, in order to fatten very fast.

It is said that chickens are very fond of sunflower seeds, which not only fattens them very quickly, but makes their flesh very tender, juicy and fine flavored.

Spread dry loam or charcoal dust on the floor of a hen house.

Caponizing Chickens Turkeys, &c.—The capon is an emasculated rooster, turkey, &c.

The art of caponizing has been known and practiced in China for thousands of years. It was also known and practiced in England at a former period, as the capon is mentioned by Shakespeare. But the art is believed now to be utterly lost in England. Indeed, very little poultry of any kind is raised in England. In France and Spain, and in the French and Spanish colonies, it is known and practiced. It is also known and practiced in Louisiana.

No person who has ever tasted the flesh of a well fattened capon will ever forget it. He will remember it as the most tender, and juicy and well flavored meats ever known. Tender as the most delicate turkey, and juicy as the finest roast beef. The flesh of the capon far excels the best turkey.

The proper time of caponizing is when the chicken is twelve weeks old.

A fair operator will lose very few chickens by the operation.

Turkeys may be caponed at the same age.

The capon is a most quiet bird. He will hardly get over any fence. He has no excitements. He does not crave much for insects, but eats cooked potatoes, carrots, &c., corn, and any grain or dough, &c.

It does not cost more than two-thirds as much to raise and fatten capons as of any other fowls. I am certain that the flesh of capons can be obtained at less cost than beef, mutton, lambs or veal.

The art of caponizing is simple, and may be performed by any one accustomed to the use of a needle and thread and scissors. The chicken should be full four months old, indeed, should be just commencing to crow. Now place him across the knee, with the legs pulled forward and firmly held by an assistant. Pluck off the soft fine feathers between the end of the breast bone and fundament, and midway between these two points make an incision an inch and a half long, ~~crow-~~

wise of the chicken's body, with a sharp pair of scissors. Through this incision insert the forefinger to the backbone, along which move for an inch and a half, and on either side will be found a testicle. Dislodge them by a single twist, and withdraw by the route the finger went in. Draw the edges of the wound made together, and half a dozen stitches with waxed thread completes the operation. The nail of the finger must be smooth, so as not to damage the intestines.

It should be mentioned, that previous to the operation of caponizing, the chicken must be deprived of food for eighteen or twenty hours.

Hen Mischief—It is very annoying to have a garden destroyed by hens, and it is more so when we reflect that it is entirely unnecessary. The secret of preventing it is, first, to treat your hens as though they were domestic animals, and not wild ones. Give them a house and a home, and train them to know that it is their home. Don't keep your chicken coops in the door yard, and then scold about the hens being always around the door. Don't compel them to roost in trees, and afterward complain about their befouling the fruit. If you have no hen house, don't grumble because the hens roost in the wagon shed. If you compel your hens to live upon bugs and worms, and chase grasshoppers, you must expect they will scratch. If you would not have your hens mischievous, feed them. Feed them as regularly as you would, or should, your pigs, and keep them fat, so that you can have a fat pullet whenever you like, and don't keep any but pullets. Kill off all the old hens before they acquire mischievous habits. That is the way to avoid hen mischief.

And if you are a gentleman or lady, if you are honest, you will not suffer your fowls, whatever they may be, to trespass upon your neighbor's premises, without their express consent.

Wild Fowl and Game. How to Ascertain the Age of Game.—An easy method of ascertaining the age of pheasants, partridges, grouse, black game, hares and rabbits in the early part of the season: Hold the lower part of the bird's beak, or what ornithologists call the mandible, firmly at its extremity between the forefinger and thumb; if the bird be an old one the beak will sustain his entire weight without in the slightest degree yielding; but if, on the contrary, the bird be a young one, the beak will yield, and perhaps break. The legs of young partridges are yellow; those of old birds darkish. A one year old cock pheasant has a short spur without any point, in fact, round; in a two year old bird, it is still short, but pointed; and in a three and four year old cock it becomes both long and very sharp, and the

plumage becomes much darker. The plumage also of the hen bird becomes much darker with age. The ears of hares and rabbits which are young may be easily slit; whereas those of old ones can only be torn by using the greatest force.

MANAGEMENT OF BEES.

The Queen Bee.—Appleton's Cyclopædia says: The queen bee is the largest, being eight and a half lines in length, the males being seven, and the workers six; her abdomen is larger in proportion, her wings are so short as hardly to reach beyond the third ring, and her color is of a deeper yellow. She is easily recognized by the slowness of her march, by her size, and by the respect and attention paid to her; she lives in the interior of the hive, and seldom departs from it, unless for the purpose of being impregnated, or to lead out a new swarm. If she be removed from the hive, the whole swarm will follow her. The queen governs the whole colony, and is, in fact, its mother, she being the only breeder out of 20,000 or 30,000 bees; on this account she is loved, respected and obeyed with all the external marks of affection and devotion which human subjects could give to a beloved monarch. In a well proportioned hive, containing 20,000 bees, there would be 19,499 workers, 500 males and 1 queen.

The Size and Shape of Hives.—All hives should be of one uniform size and shape, unless you should design to make a trial of different inventions. It has been decided, from long experience in bee keeping by the best apiarians in this country, that the lower sections of hives should contain about 2,000 cubic or solid inches. If they contain less than this, the queens will not have sufficient space for their brood. If they are larger, to much extent, there will be less surplus honey stored, and less swarms thrown off.

The best shape for a hive is slightly oblong, a little higher than it is wide. We refer to the main section, where the bees build their brood combs. By being of this shape, they will winter better in most cases, than they do where a greater surface below is exposed to the cold air. It is not of much consequence what the shape of the *supers* is, so far as the prosperity of the bees is concerned. They should, however, be so made as to admit a sett of four boxes, about six inches in diameter, and about the same height. Honey does not sell well in the New York market, if the boxes weigh over six to eight pounds.

If the honey is merely for home consumption, the boxes should be larger. Indeed, if but one box is supplied, to hold thirty or forty pounds, it will generally be filled about as quick as small boxes holding in the aggregate about thirty pounds.

Mr. Quinby tells us that bees will store *most* honey when they have but one apartment of a size that will just be filled by the end of the season. When this is divided, and the bees have filled one and are forced into another for want of room, they will lose a little time before commencing in the second. The greater the length and the less the number and size of the passages the longer the bees will be in commencing work there.

Painting Hives.—It may not be desirable to paint hives, but if it is done let it be some months previous to using them, and let the color be light but not a clear white. Swarms put into newly painted hives, especially dark colored ones, are quite apt to leave.

Hiving Bees.—Draw a long woolen stocking on the end of a pole, and when the swarm begins to settle place the stocking where the bees seem thickest and hold it there until it is completely covered with the whole swarm. Have a sheet spread and then lay the pole or rather stocking on the sheet, put the hive over and carefully pull out the pole.

Bee Pasturage.—The *Bee Journal* says: "The rapidity with which bees will build comb and gather honey, under favorable circumstances, is so extraordinary as to be almost incredible. Mr. Brink says that he has known a strong swarm to fill its hive with comb in twenty-two hours; and that colonies expelled in August, put into empty hives, and transported to the heath, would fill the hive with new comb and gather from thirty to forty pounds of honey, in the brief season for work in which they could labor.

It is estimated that the annual crop produced in Tompkins county, N. Y., is one hundred thousand pounds of honey, and five thousand pounds of wax.

Remedy for the Robbing of Bees.—Mr. Quinby, in his "Mysteries of Bee-Keeping," says: "Remove the weak hive in the morning to the cellar, or some dark, cool place, for a few days, until at least two or three warm days have passed, that they may abandon the search. The robbers will then probably attack the stock on hand. Contract the entrance of this in accordance with the number of bees that are to pass. If strong, no danger need be apprehended.

"Another method is, when you are sure a stock is being robbed, to make a time when there are as many plunderers inside as you can get.

and close the hive at once, (wire-cloth, or something to admit air, and at the same time confine the bees, is necessary;) carry in as before, for two or three days, when they may be set out. The strange bees thus enclosed will join the weak family, and will be as eager to defend what is now *their* treasure, as they were before to carry it off. This plan succeeds about four times in five, when a proper number is enclosed. Weak stocks are strengthened in this way very easily; and the bees being taken from a number of hives are hardly missed. The difficulty is, to know when there are enough to be about equal to what belongs to the weak stock; if too few are enclosed, they are surely destroyed."

K. P. Kidder of Burlington, Vt., Practical Agriculturist, says: If the stock is a good one, and a small entrance given to the bees, say one half inch by one quarter inch, it is very seldom that bees will ever get robbed, especially if they have a fertile queen.

After a swarm of bees fairly get to robbing, it is not an easy task to prevent it, unless they are captured and imprisoned. They then can be destroyed, or kept imprisoned for nine days and made to serve us the same as other colonies, providing they are foreign bees. If our own bees get to robbing each other, then there is no other alternative but to scent the besieged hive with some essential oils, and contract the entrance to both hives.

To Remove Boxes of Honey.—Remove them immediately to a dark cellar, shut all windows but one, place the boxes near it, and as the bees come out of the box they will make for the light, and return to their hives. If he has no cellar, another very good way is to take off the boxes when it is warm; turn them with the hole up, then set glass tumblers over the holes; when a quantity get up in the glasses, raise them and let the bees out. This will prevent any from entering the box.

Wintering Bees.—To winter bees successfully it is necessary to keep them warm, and at the same time dispose of the moisture always generated in the hive. Several patents have been granted for particular openings, and the manner of condensing the moisture, which are no improvement on the box hive with the holes left open in the top. Straw is valuable in absorbing moisture and retaining heat, and bees will winter in the open air in the best manner possible in hives made of this material. The conical shape of the old fashioned straw hive is not adapted to improved bee culture, and if straw is used, some of the new forms should be adopted,

It is ascertained that a partition in the hive, with holes for communication, will keep the honey separate from the pollen.

Feeding Bees.—For this purpose honey in the comb is best—next strained honey poured over empty comb, and last, a mixture of two pounds sugar heated in a pint of water.

Effects of Chloroform on Bees.—Mr. Annan, builder, Downfield, wishing to have the honey taken away without killing the bees, and having before heard of chloroform being used, felt anxious to try the experiment. He first closed the doorway, and then covered the hive with a cloth, to shut out the light as much as possible, after which he commenced to blow chloroform into the hive. When it was discovered that the bees had fallen asleep, they were easily removed to another hive without any harm to any one, and the next morning were all awake and in a lively state, humming around their hive, no doubt wondering what had happened. This being a successful and useful experiment in keeping the bees alive, we think it right to make it known for the benefit of others.

To Stop Bees Robbing.—Coal oil sprinkled about the entrance of the hive, is a sure remedy to drive away robber bees. I have tried it in several instances, the past season, with entire success.—*J. L. Peabody.*

To Prevent Bees from Stinging.—(See page 19.)—Bees gorged with honey never volunteer an attack.

HOW TO MAKE A DOMESTIC FISH POND.

A correspondent of *The Homestead* gives the following account of making a fish pond:

“Three years ago I constructed in a ravine a fish pond, covering a surface of about three-fourths of an acre. It is fed by four small springs, and receives a large amount of surface-water from the slopes around. It is fifteen feet deep at the greatest depth, and has shallow bays and inlets, where the small fish may breed and find protection from larger ones. It contains a small island, and the shores are embellished with flags, (*Iris*), water-lilies, (*Nymphae odorata*), and other water-plants. It was stocked with yellow bass, Oswego bass, white perch, and every variety of sun fish and minnows, also a dozen gold fish, (*Cyprinus auratus*.) And now, at the end of three years, it is astonishing to note the vast increase in my scaly family. They have

multiplied by hundreds, and grown in size beyond all my calculation. The gold fish number several hundred, some of them over a foot in length, and a few of them are beautifully marked with silvery sides and red fins, head and tail; others with golden sides and black fins and tail. I had no idea that they would thus sport in colors, but certainly they are very beautiful. The other fish have grown so much, that I intend to commence using them for the table in autumn. I have not fed these fish, except for amusement and to tame them, when a few crumbs of bread are thrown in, from a small bridge connecting the island with the shore, and the fish called up like chickens. The sun-fish, gold fish, and smaller fry soon learned to come at my call, and to follow me in great numbers, from one end of the bridge to the other for their morning or evening meal.

"The young bass (the old ones hold back) and the sun-fish dart to the surface for their food, and have a lively scramble for it; the gold fish pick up what sinks to the bottom. Their habits in this way are very much like a flock of chickens, for some of the smaller fish take their position immediately under my feet, to pick up the small crumbs that fall in breaking the larger ones to throw out. Some persons ring a small bell to bring their fish up, but I prefer calling mine. They do not appear to come from a greater distance than about forty feet to any one spot. I feed them in several places, to note the varieties and their growth. Now, as to the utility of this pond; it furnishes ice for my own use, and three or four of my neighbors who have ice-houses; it also affords excellent stock water, and will doubtless hereafter supply my table with fish. A small skiff on its surface gives many a pleasant hour of recreation to the young who are fond of rowing.

"The construction of this pond was very simple. The earth was excavated across the ravine four feet deep and five feet wide for a foundation; then stiff clay filled in and well pounded, to prevent leakage at the bottom. The earth from the bottom and sides of the ravine was thrown on the top of this foundation, to raise the embankment to the proper height. A waste weir at one side, paved with flag-stones and two feet lower than the top of the dam, sufficiently large to carry off the heaviest flow of water in very heavy rains, guarded by a wire screen to prevent the escape of the fish, completed the construction. It is now sodded over, and planted with willows at the foot, and is considered safe. The expense of making such a pond is small, and it adds much to the value of the farm."

Messrs. Dunham, Kellogg and Ives, of Hartford, Conn., are cultivating trout on a large scale in a pond in Glastenbury. They have

nearly fifty thousand of a stock, and when the number reaches half a million the proprietors expect to net twelve thousand five hundred dollars per annum from them.

Aquariums.—Construct of plank, coat with pitch or a varnish of sealing wax dissolved in alcohol at seams. They should contain several species of water plants. Change the water frequently. Common pitch is the best cement which can be used. It does not communicate any deleterious quality to the water like cements made with litharge and oil.

To Stupefy Fish.—Coculus Indicus is used to destroy or stupefy fishes so that they can be taken with little trouble and in large quantities.

VALUABLE TABLES, ETC.

Land Measure.—Every farmer should have a rod measure, a light, stiff pole, just sixteen and a half feet long, for measuring land. By a little practice he can learn to step just a rod at five steps, which will answer very well for ordinary farm work. Ascertain the number of rods in width and length, of a lot you wish to measure, and multiply one number by the other and divide by one hundred and sixty, and you have the number of acres; as one hundred and sixty square rods make one square acre. If you wish to lay off one square acre measure thirteen rods upon each side. This lacks one rod of full measure.

One acre is comprised in two hundred and eight and three-fourths feet square; half an acre is one hundred and forty-seven and a half feet square; fourth of an acre is one hundred and five and one-fourth feet square; an eighth of an acre is seventy-three and three-fourths feet square. Every farmer by observing this rule can set off any of these quantities of ground accurately without trouble.

To Estimate Crops per Acre.—To estimate the yield per acre of a growing crop, wheat, rye, oats, barley, &c., the following method has been found correct in England.

Frame together four light sticks, measuring exactly a foot square inside, and with this in hand walk into the field and select a spot of fair average yield, and lower the frame as square over as many heads as it will enclose, and shell out the heads thus enclosed carefully, and weigh the grain. It is fair to presume that the product will be forty-three thousand five hundred and sixtieth part of an acre's produce.

To prove it, go through the field, and make ten or twenty similar calculations, and estimate by the mean of the whole number of results. It will certainly enable a farmer to make a closer calculation of what his yield will produce than he can do by guessing.

To Measure Corn in the Crib.—Find the cubic inches in the crib, bin or pile, then divide by two thousand eight hundred and fifteen, the cubic inches in a heaped bushel, and take two-thirds of the quotient for the number of bushels of shelled corn. This is upon the rule of giving three heaping half bushels of ears to make a bushel of grain; some fall short and some overrun this measure. Where it takes two bushels of ears to make one of shelled corn, one-half instead of “two-thirds” of the quotient will give the number of bushels shelled.

Examples: In a crib of corn in the ear measuring ten feet in length, eight feet high and seven feet wide, there will be two hundred and fifty-three bushels of shelled corn, if only three heaped half bushels of ears are required to make a bushel shelled—or one hundred and eighty-nine and a half bushels of shelled corn, if it takes two bushels of ears for one shelled.

Another and simpler rule is: Multiply the cubic feet contents of the crib by four and a half, and cut off the right hand figure, which will give the bushels of shelled corn, one bushel shelled for three heaped half bushels of ears. Example: $10 \times 8 \times 7 \times 4\frac{1}{2} = 253$, the same as above. If two bushels of ears are required to make a bushel shelled, then multiply this result by three and divide by four. Thus, $253 \times 3 = 759$; and $759 \div 4 = 189\frac{1}{2}$.

The above rules agree with weighing corn—seventy pounds to the bushel in the ear. Assuming them to be correct, they will certainly be found to be very useful.

Other rules disagreeing with the above are given. Perhaps the custom of different localities, and the difference in varieties of corn may sufficiently explain their origin.

One given by the New York *Tribune* is, to multiply the cubic contents in feet by three and one-fourth, and cut off the right hand figure, which in the above example gives but one hundred and eighty-two bushels of shelled corn.

To this a correspondent of the *Country Gentleman* adds: If the corn is green or has not settled in the crib, multiply by three and one-fifth, &c.; while another says, multiply the cubic contents in feet by the decimal eight-tenths; and for the heaped or coal bushel of two thousand six hundred and eighty-eight inches, multiply by sixty four hun-

dreths. And another still says : Deduct one-fifth from the cubic feet contents of the crib.

Shrinkage of Corn in Drying.—The weight of cobs in a bushel of corn in November ascertained to be nineteen pounds, was only seven and a half pounds in May.

What is a Bushel Measure.—The old Winchester bushel, which is the legal bushel of the United States, contains two thousand one hundred and fifty and forty-two one hundredth cubic inches. To make a box hold half a bushel, it will require one foot square inside measure, and seven and a half inches high; or twice that height for a bushel. A hoop eighteen and a half inches in diameter, and eight inches deep, holds a bushel. A heaping bushel is 2,815 cubic inches.

To Measure Grain in the Bin.—The quantity of grain in any bin can easily be computed by reducing its contents to inches and dividing it by the number of cubic inches in a bushel as above.

Or multiply the width and length of the bin together, and that product by the height, and divide by 2,150, and you have the contents in bushels.

LEGAL WEIGHTS OF THE BUSHEL OF ALL KINDS OF AGRICULTURAL
PRODUCE IN DIFFERENT STATES.

ARTICLES.	New York	Ohio	Pennsylvania	Indiana	Wisconsin	Iowa	Illinois	Michigan	Connecticut	Massachusetts	Rhode Island	Kentucky	New Jersey	Vermont	Missouri	Canada
Wheat, lbs.	60	60	60	60	60	60	60	59	60	60	60	60	60	60	60	60
Rye	56	56	56	56	56	56	54	56	56	56	56	56	56	56	56	56
Corn	56	56	56	56	56	56	56	56	56	56	56	56	56	56	52	56
Oats	32	32	32	32	32	32	32	32	28	30	30	30	30	32	34	34
Barley	48	48	48	48	48	48	44	48	46	46	48	48	46	46	48	48
Buckwheat	48	48	48	50	42	52	40	42	45	46	46	52	50	46	48	48
Clover seed	64	64	60	60	60	60	60	60	60	60	60	60	64	60	60	60
Timothy Seed	45	42	45	45	45	45	45	45	45	45	45	45	45	45	48	48
Flax seed	56	56	56	56	56	56	56	56	56	56	56	56	55	56	56	56
Hemp seed	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
Bl. Grass Seed	15	15	14	14	14	14	14	14	14	14	14	14	14	14	14	14
Dried Apples	22	25	30	28	24	28	28	28	28	28	28	28	28	28	22	22
Dried Peaches	32	33	34	34	38	38	38	38	38	38	38	38	38	38	38	38
Dried Plums	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
Coarse Salt	56	50	85	50	50	50	50	50	70	70	50	50	50	50	50	56
Fine Salt	56	50	62	50	50	50	50	50	70	70	50	50	50	50	50	56
Potatoes	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Peas	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Beans	60	56	60	60	60	60	60	60	60	60	60	60	60	60	60	60
C. Beans	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
Onions	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Corn Meal	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Mineral Coal	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70

Corn on the cob, seventy pounds; bran, twenty pounds; sweet potatoes, fifty pounds; turnips, carrots, parsnips, beets, sixty pounds malt, thirty-six pounds.

Number of Seeds in a Bushel.—A correspondent of the New England *Farmer* says: Timothy seed numbers 41,823,360 grains to the bushel, and if sown on an acre of ground, as recommended by some would give about six to the square inch. Clover of medium size 17,400,960, or two and three-fourths to the square inch. Rio Grande wheat, fair and plump, 556,288 to the bushel, or twelve and three-fourths to the square foot. Rye, 888,390, or twenty and a half to the square foot. Thus it is easy to judge of about the quantity that should be sown per acre.

An English table gives: Wheat, 660,000; Oats, 672,000; Barley 550,000; Rye, 1230,000; Buckwheat, 1404,000; Red clover, 15,000,000 White clover, 40,220,000.

Quantity of Wheat for a Barrel of Flour.—Four bushels and fifteen pounds of winter wheat, or four bushels and thirty-two pounds of spring wheat, fair quality, will make a barrel of flour.

To Estimate weight of Hay in Bulk.—On an average about five hundred to five hundred and twelve cubic feet, or a cube of eight feet, of hay well packed in a large mow, will make a tun. Yet without good sound discretion, it is not safe to buy or sell hay by measure. Fine timothy in the bottom of a large, deep mow, will require only about four hundred cubic feet for a tun; while of coarse clover on a scaffold eight hundred cubic feet will seldom make a tun.

Shrinkage of Hay in Drying.—From experiments made many years ago and published in 1823, it appears that one hundred pounds of green white clover yield of dry hay twenty-nine pounds; the same of green red clover twenty-five pounds; timothy, thirty-nine pounds red top, forty-six pounds; Couch grass, forty-eight pounds. The loss of hay weighed July 20, when cured enough to put in the barn, and again February 20, has been ascertained to be twenty-seven and a half per cent. So that hay at fifteen dollars per ton in the field is equal to twenty dollars and upwards when weighed from the mow in winter.

To Estimate Weight of Cattle by Measurement.—Measure carefully with a tape line from the top of the shoulder to where the tail is attached to the back; this will give the length. For the girth, measure immediately behind the shoulder and fore legs. Multiply half the girth by itself in feet, and the sum by the length in feet, and the product will give the net weight in stones of eight pounds each.

The *Spirit of the Times* says: To ascertain the weight of a beast when alive, take the girth behind the fore arms in inches, and square it; take the length from the top of the shoulder to the buttocks in inches, and multiply the square of the girth by it; multiply that product by the decimal 0.7958, and divide that product by 576, which gives the weight in stones of fourteen pounds each. The same rule applies to all classes of animals when thoroughly fat.

Difference between Live and Dead Weight of Cattle.—An animal in good condition will usually lose from thirty-two to forty per cent. of its live weight in dressing. If very fat and well formed, the loss will be about one-third, or thirty-three per cent. This is for "Boston weight," where the hide and fat, counted as the "fifth quarter," is taken into account. At "York weight," where the meat only is counted, the bullocks vary from fifty to seventy per cent. of dead weight on the live weight. An old "shelly ox," that would weigh 16 cwt. on the scales, would not sell for more than 8 cwt. net. A steer in fair order for packing beef, would sell at about 55 lbs. net on the live weight—say 715 lbs. upon 13 cwt. A fair quality for retail market beef—steers, oxen, or cows—would rate 57 to 58 lbs. per cwt.; and a bullock of prime quality, 60 or 62 lbs. per cwt. All above that are counted "extra," "premium," or "fancy," and at the highest rate reach 70 or 72 lbs. per cwt.

The common practice at the West is to weigh fatted cattle, some hours after feeding and a little exercise, and calculate the net weight at 55 pounds per 100 of the live weight.

Live and Dead Weight of Sheep.—Sheep will dress from fifty to sixty-five pounds per hundred weight of live weight.

The English rule is to weigh sheep when fatted and divide the weight by seven and call it quarters. Thus a sheep weighing one hundred and forty pounds, would give twenty pounds a quarter as dead weight. If the sheep are in good condition, this rule is sufficiently accurate for all purposes. Poor sheep will fall below the mark, and extra fat ones go over it.

Gross and Net Weight of Hogs.—Hogs are generally calculated to shrink twenty per cent., but a good fat lot, that will average two hundred pounds live weight, will not shrink over seventeen or eighteen per cent.

Average Period of Gestation in Domestic Animals.—Mare 347 days—Cow 284—Ewe 154—Sow 115—Goat 156—Ass 380—Rabbit 28. The larger quadrupeds vary more than the smaller.

Average Period of Incubation with Domestic Fowls.—Pigeons are

hatched in eighteen days; chickens, twenty-one; turkeys, twenty-six; ducks and geese, thirty.

Weights and Measures.—The United States standard gallon contains 231 cubic inches; and the United States standard bushel contains 2,150.42 cubic inches. A cubic foot of water weighs 62.5 pounds; foot of hard wood, green 62 pounds, air dried, 46 pounds, kiln dried 28 pounds. A cubic foot of cast iron weighs 450 pounds; of wrought iron, 480 pounds; coke, 50 to 65 pounds; coal, 75 to 95 pounds; sandstone, 140 pounds; granite, 180 pounds; brickwork, 95 pounds. No. 1 iron is 5-16 inch thick; No. 3 is 9-32, scant; No. 4 is $\frac{1}{4}$ inch; No. 5 is 7-32, and No. 7 is 3-16 inch thick. The above is on the excellent authority of the *Scientific American*.

Relative Heating Value of Different Kinds of Wood.—The following is set down as the relative heating values of different kinds of American wood: Shellbark hickory, being taken as the highest standard 100; pig nut hickory, 95; white oak, 75; white hazel, 72; apple tree, 70; red oak, 69; black walnut, 66; white beech, 65; black birch, 62; yellow oak, 60; hard maple, 59; white elm, 58; red cedar, 55; wild cherry, 55; yellow poplar, 52; butternut, 52; white birch, 48; white pine, 42.

In one of the tables quoted in the Ohio Agricultural Transactions for 1860, it is stated that hickory, one cord, will produce a certain heat for 100 days.

White oak, one cord, will produce the same for 77 days.

White beach,	do	65	"
White birch,	do	48	"
Black birch,	do	63	"
White elm,	do	58	"
Hard maple,	do	60	"
Soft maple,	do	59	"
Red oak,	do	68	"
Pitch pine,	do	35	"
White pine,	do	42	"

Shrinkage of Oak Timber.—Oak timber loses about one-fifth of its weight in seasoning, and about one third of its weight in becoming perfectly dry.

What a Circular Saw will do.—A circular saw, two and a half feet in diameter, and making 270 revolutions per minute, will saw four square feet of oak and seventy square feet of spruce per hour, per horse power.

Horse power.—One horse can raise 150 pounds two hundred and

twenty feet high in a minute, eight hours a day; one horse power is reckoned at from 30,000 to 36,000 pounds raised one foot high per minute; one horse force, drawing horizontally, is estimated at 770 pounds; one horse can draw on a level 4,480 pounds—two tons, equal to seven men.

Power of a Man.—An active man, working to the best advantage, can raise ten pounds ten feet in a second for ten hours in the day, or 100 pounds one foot in a second. Absolute force of pressure with the hands was found by the dynamometer of Regnier to be on an average equal to 110 pounds. Absolute force of a man lifting with both hands, 286 pounds. Greatest average load which a man can support on his shoulders for some seconds, is estimated at 330 pounds, and it is supposed that he can exert the same force in drawing vertically downward. The mean absolute force, in drawing or pulling horizontally, is found by the dynamometer to be 110 pounds; the force of the pull in the strongest man was found to be only 20 pounds more than the average. One strong man can draw on a level 640 pounds.

Units of Horse and Man Powers.—An active man, in the prime of life, can raise 100 pounds one foot per second, working ten hours per day; a horse can raise 550 pounds in the same space of time. These are units of horse and man powers.

To Calculate the Number of Barrels in a Water Cistern.—Divide the cubic contents in feet by four and twenty-one-hundredths. For each foot of depth, the numbers of barrels answering to the different diameters, are as follows:

For 5 feet in diameter, 4.66 bbls.	For 8 feet in diameter, 11.93 bbls.
" 6 do do 6.71 do	" 9 do do 15.10 do
" 7 do do 9.13 do	" 10 do do 18.65 do

To Calculate the Quantity of Fluid Discharged per day from any Opening.—Ascertain the cubic feet of any fluid discharged per minute from any opening, and multiply them by 9,000, and you have the number of gallons for twenty-four hours.

Liquid Measure.—One teaspoonful contains sixty drops; four teaspoonfuls are equal to one tablespoonful; one tablespoonful contains half an ounce; four tablespoonfuls are half a gill; eight tablespoonfuls are one gill; a commonsized wine glass contains half a gill, or 2 ounces; a teacup contains a gill; a common sized tumbler holds half a pint.

Number of Cut Nails by Count per Pound.—Of three-penny, 600; four-penny, 360; six-penny, 200; eight-penny, 110; ten-penny, 88; twelve-penny, 68; twenty-penny, 40.

The Barrel.—A barrel of pork or beef is 200 pounds; of salt, 280

pounds, in some places 250; potatoes, in New York, 2½ bushels; flour, 196 pounds; rice, 600 pounds; cider and other liquids, 30 gallons; powder, 25 pounds.

A CHAPTER ON PESTS AND THEIR REMEDIES.

Remedies for Rats and Mice.—To get rid of these pests, apply whatever remedy you select as soon as they make their appearance, and persevere with it. Powdered potash, strewn in their paths, and rubbed on the edges of boards where they come through, makes their feet sore, and drives them away. The pulverized potash is sometimes sprinkled over cotton batting, and crowded into the holes which they frequent. Chloride of lime, or bleaching powder, loose or wrapped in a rag, and stuffed in rat holes, or passage ways, will often drive them away for a few months, until the chlorine odor has disappeared. A strong solution of copperas, sprinkled freely in their haunts and hiding places, has in many instances driven them away effectually. Plaster of Paris has proved successful. A tablespoonful of live plaster, mixed in a cup of Indian meal, or flour, or equal parts of plaster and flour, mixed dry, slightly sweetened with sugar, and put in dry places, will be eaten ravenously by both rats and mice. The plaster sets firmly directly after it is moistened, becomes a lump inside of them, and kills to a certainty. A little grated cheese makes the food more attractive. Oil of anise would be still more so. Ten grains of powdered phosphorus, mixed with a pint of Indian meal, is a good remedy. Five cents worth of strychnine, mixed with a pint of Indian meal, with grated cheese, or oil of anise, is effectual. A handful of seeds fresh from a pumpkin, or soaked in water a short time, then sprinkled with a little arsenic, and placed at night where rats and mice frequent, is a pretty certain remedy, for they are so fond of the seeds, they seldom refuse to eat them. Sir Humphrey Davy's great remedy was hog's lard and carbonate of bareyta, mixed well together in sufficient quantities, then smeared upon the inside of a skillet, and placed so that neither cats nor dogs, nor anything but rats and mice, can have access to it. A very successful plan has been to bait them regularly every night for a week with good fresh Indian meal, the seventh night adding strychnine, or equal parts of orpiment and arsenic. Powdered nux vomica, mixed with oat or corn meal, and placed in the haunts of rats and mice, is sometimes a very successful remedy. With this, as with

some of the preceding, proper precautions must be observed to prevent accidents. A bunch of raw cotton, saturated or moistened with any kind of oil, and dipped in dry Scotch snuff, then used to wad up holes, has been well recommended. To drive away and keep rats from corn cribs and granaries, place gas tar in them, and daub some in their holes, and they will leave the premises at once. One part of powdered squills to three or four parts of strong smelling cheese, mixed and made into balls, then placed where rats will get at it will either kill them or cause them to disappear immediately.

A remedy which is extensively manufactured and sold at a great profit is made as follows: In a pot of water put two spoonfuls of cayenne pepper, one spoonful pulverized anise seed, half a drachm each of salt petre and white lead, and a wine glass of extract of hops. Then take a loaf of stale bread and throw it into the above mixture in crumbs; digest for six hours in a moderate heat; strain through a cloth; add thereto thirty drops of the tincture of quassia, and let it stand until next day, then bottle it. Some pieces of bread saturated with this will destroy all the rats and mice. Some lumps of sugar saturated with it will be a speedy cure for cockroaches.

The following methods have been employed very successfully: Fill a large smooth kettle with water, and then cover with a few inches of chaff. The first rat that gets in makes a great outcry, which brings others to share his fate. A barrel, one-third full of water, with an island, the surface covered with chaff, and a bait suspended over it, is an excellent trap. A large kettle half full of water, with a small stone island in the center, just big enough for one rat to rest upon, the top of the kettle being covered with parchment similar to a drum-head, having a cross cut in the center, is a first rate trap. Fasten a small bait upon the points of the cut, and the rat jumps down from a board arranged for the purpose, and through he goes into the water. He scrambles on the island and screams for help. Another hears him, and comes looking around, sees the bait, jumps for it, takes the plunge, and goes down on the other fellow's head. Then comes a scramble for place, the stronger pushing the weaker off to take his place in the water. This muss, as with men, attracts others, and in they go. We have heard of twenty in a night thus inveigled to destruction. A large wire cage trap, where the second rat will go in because he sees the first in there, often proves successful in ridding a place of the pests. If the center of a cage is sprinkled with a few drops of the oil of Rhodium, multitudes are irresistibly attracted to the spot, to be disposed of at will. By the use of oil of Rhodium, or oil of anise, rats

may be coaxed out of a house to eat poison and die where their bodies will not be a nuisance.

Tarring and feathering rats, and then letting them run, has been practiced to give the tribe a hint that it would be well for them to leave. It is said that if a dozen rats are caught and put alive in a large kettle, out of which they cannot escape, and kept there without food, they will devour each other till there is but one left, and that the strongest; that if he is then let out, he will catch and eat every rat on the premises. A gentleman in New York opened the floor at several places in the upper stories of his house, placed there vessels containing a mixture of sulphuric acid, black oxide of manganese and common salt, and closed down the boards. The result was a slow chemical decomposition and recombining of elements, in the progress of which the heavy, stifling gas, chlorine, was disengaged. This made its way along the open spaces and down to the cellar. A few breaths of the poisonous atmosphere served to convince the rats that danger was at hand. Seizing what of their accumulated plunder they could, they hastened to abandon the premises, sneezing and weeping as they went, from having inhaled the noxious chlorine. Many months passed before one of the number ventured to return. An army of ants, moths, bugs, roaches, and other pestilent insects perished in the fumes.

When one remedy fails it is always best to immediately try another, for these pests soon destroy more than the cost of all the remedies enumerated put together. A good-mannered well-trained cat is always one of the most efficient remedies; a good terrier dog is often useful; ferrets and weasels are frequently effective.

Remedies for Ants.—One of the best is half a pound of flour of brimstone and four ounces of potash, placed over the fire in an iron or earthen pan, until dissolved and united, then beaten into powder, and a little of it infused in water. Wherever this is sprinkled, the ants will die or leave the place. Flour of sulphur alone sprinkled in their haunts is said to repel them. Ground coffee scattered about their haunts, through the season, following them up from place to place, will cause them to disappear. Spirits of turpentine, poured on their hillocks disperses or destroys them. Bottles partly filled with sweetened water attract them, and imprison and drown them. It is said that they avoid drawers and boxes made of red cedar; also that red cedar shavings placed in drawers or on shelves will repel them. We have seen preserves, &c., kept from ants by being placed on tables, the legs of which were set in dishes of water. Or the dish of preserves, sugar bowl, &c., may itself be placed in a plate of water, or in

a plate covered with powdered chalk. Mix together two-thirds of a tumbler full of whisky, molasses and water in equal parts and place it where they frequent. This will attract and catch them, when you may destroy them as you please. Or smear the inside of a vessel with honey, and invert it over their nests or places of most frequent resort, and when covered with them jar them off into boiling water.

Red ants are repelled by placing camphor about the shelves, &c., where they are found. Twigs of tomato vines thrown around closets are said to repel them. A small quantity of corrosive sublimate (poison,) dissolved in alcohol and applied thoroughly with a feather in the crevices and corners of shelves, across the threshold of closet doors, sills of windows, &c., renewing it every three or four weeks in warm weather, will be found a most perfect preventive. If shelves, &c., are washed clean, and while damp fine salt rubbed on them quite thick, and allowed to remain for a time, the ants will disappear. Black walnut leaves, also green sage placed in closets likely to be infected by them is said to be a preventive. The following is a very simple and said to be a very effectual remedy: Procure a large sponge, wash it well and press it dry, which will leave the cells quite open; then sprinkle over it some fine white sugar, and place it near where the ants are troublesome. They will soon collect upon the sponge and take up their abode in the cells. It is only necessary to dip the sponge in scalding water, which will wash them out dead by the tens of thousands. Put on more sugar and set the trap for a new haul. This process will soon clear the house of every ant.

Remedies for Cockroaches.—Roaches devour greedily, and die while eating, flour paste, if into half a pint of it, while hot, a dime's worth of phosphorous is stirred, in a tin cup, with a long stick. When this is nearly cold, add a quarter as much grease, to keep it from drying; then smear it on broken glass or dirty board, to be left where they congregate. Common red wafers scattered about their haunts often drive away, if not destroy them. Dried camomile flowers powdered and blown into their crevices expel them. Cucumber rinds placed plentifully around their haunts, and renewed every week or two are said to drive them away. Corrosive sublimate as recommended for ants is a certain remedy.

Remedy for Crickets.—Scotch snuff put on the holes where crickets come out, will destroy them.

Remedies for Moths.—Destroy the millers that make the moths, by catching them with sweetened water and vinegar. Or in the evening place a burning lamp or candle in a pan of water and they will be at-

tracted to it and drowned. Fumigate closets and drawers with tobacco. Wrap up some yellow or turpentine soap and place it or an open bottle containing spirits of turpentine in the wardrobe. In the month of April or May, beat your fur garments well with a small cane or elastic stick, give them a thorough exposure to the hot sun if practicable, wrap them up in linen, without pressing the fur too hard, and put between the folds some camphor in small lumps; then put your furs in this state in boxes well closed. When the furs are wanted for use beat them well as before, and expose them for twenty-four hours to the air, which will take away the smell of the camphor. If the fur has long hair, as bear or fox, add to the camphor an equal quantity of black pepper in powder. Rub or strew under and around the edge of carpets, and on them, salt and black pepper, or salt and Scotch snuff. Tobacco, turpentine, camphor, shavings of camphor-wood, shavings of cedar-wood, small branches of cedar, pimento berries or alspice, and aromatic herbs, have all been recommended as preventives of the moth to be distributed freely among clothes and furs in bags, boxes, drawers, closets, &c. Clothes closets that have been infested with moths should be well rubbed with a strong decoction of tobacco, and repeatedly sprinkled with spirits of camphor. The odor of turpentine is a deadly poison to moths and their grubs. A few pieces of paper smeared lightly with turpentine, and placed in drawers where furs and woollens are kept, will completely prevent their ravages. It is said that moths can't bear tallow, and that a pound of commonest tallow candles put in paper and scattered through a closet, will secure the clothes in it from injury. A remedy used in Russia under the name of Chinese Tincture, for moths, is composed of one ounce of gum camphor, and one ounce powdered red pepper, macerated in eight ounces of strong alcohol for several days, then strained. With this tincture the furs or cloths are sprinkled over, and then rolled up in sheets. If furs are washed with twelve grains of corrosive sublimate in a pint of warm water, and then dried, the moth will not molest them. Remember this is poison. For carpets, after the moths have commenced eating, the best thing that can be done, without taking the carpet up is, to wring out a crash towel, spread it smoothly on the carpet, wherever moths are suspected or detected, and iron it dry with a hot iron, repeating if necessary. The hot steam will penetrate the carpet (not injuring the color at all,) and kill both worms and eggs.

Mosquitoes.—Camphor is the most powerful agent to drive away mosquitoes. A camphor bag hung up in an open casement, it is said, will prove an effectual barrier to their entrance. Camphorated spirits

applied as a perfume to the face and hands will act as an effectual preventive; but when bitten by them, aromatic vinegar is the best antidote. A newspaper says, put a couple of generous pieces of beef on plates, near your bed at night, and you will sleep untroubled by these pests.

Fleas.—Five or six pieces of camphor of the size of a walnut tied up separately in pieces of cloth, and placed in different parts of the bed will keep fleas away. Blankets with long nap substituted for sheets to the bed will place them at your mercy, as their legs become entangled. A few drops of the oil of wormwood sprinkled among clothing will keep them away.

Bed-Bugs.—A very sure remedy is to take a board, say a foot wide and four feet long, puncture it with many holes with a small bit, put it inside of the head board and next to the bed and pillows; if there is a bug about the bed he will find his way to the holes in the board soon. Take it out of its place every morning, hold it over the fire or water, and give it a few raps with a hammer, then put in place and repeat. The following remedy is said to be infallible: Take two pounds of alum, bruise it and reduce it nearly to powder; dissolve it in three quarts of boiling water, letting it remain in a warm place till the alum is dissolved. The alum is to be applied hot, by means of a brush, to every joint and crevice. Brush the crevices in the floor of the skirting board if they are suspected places: whitewash the ceiling, putting in plenty of alum. It is also said that half an ounce of soap boiled in a pint of water, and put on with a brush while boiling hot, infallibly destroys the bugs and their eggs. Whatever remedy is used, must be applied thoroughly, and repeated several times in quick succession, or it will be in vain.

Coal oil is a most effectual remedy applied plentifully with a small brush or feather to the places where they congregate. A decoction of half a pound of dried calamus (sweet flag) root, boiled in two quarts of vinegar, and left to steep over night, will remove bed bugs, if the bedsteads are thoroughly and repeatedly washed with it. Filling every crack with salt, or washing every place infested with very strong salt water, repeating the process very frequently, has been well recommended. Turpentine has been recommended; so has quicksilver thoroughly mixed with white of egg; also quicksilver and lard, rubbed together in a stone mortar or earthen bowl until well mixed, then put in the crevices of bedsteads, &c., in small quantities. This is similar to blue ointment and has an advantage over liquids as it does not dry, and will remain for years unless washed off. Candlewick saturated with

tar and tied loosely (so as to retain the tar) around the foot of the bedstead in the smallest part, or on the castor just above the roller, renewing the tar as often as necessary, has been practiced it is said with success. Corrosive sublimate with alcohol is an effective remedy thoroughly administered. Corrosive sublimate and muriatic acid, each one ounce, and water half a pint, is one of the cleanest and surest remedies. What remains should be thrown away as it is a deadly poison.

Body Vermin.—These breath through their sides, and common sweet oil plugs up their conduits so that death from suffocation is speedy and certain, always. Ignorance in many cases makes the oil, which is the efficient remedy, merely the vehicle for applying a poison, dangerous to man, which has no efficiency whatever in destroying vermin.

House Flies.—To one pint of milk add a quarter of a pound of raw sugar and two ounces of ground pepper; simmer together eight or ten minutes, and place it about in shallow dishes; or, take as much each of ground black pepper and sugar as will lie on a dime, moisten with two teaspoonfulls of cream or rich milk, and spread it on a plate or board; the flies eat it greedily, are soon suffocated, seek the air, and die out of doors. By this means, kitchens, &c., may be kept clear of flies all summer without the danger attending poison. The Colton fly trap is remarkable for its simplicity, and for its efficiency during autumn, when flies settle in great numbers on the ceilings of rooms. It consists simply of a glass tumbler half full of soap suds. In the morning before fires are made, and while the flies are half dormant with the chill of cold autumn nights, the tumbler is placed up against the ceiling, so as to enclose the fly—he starts to escape but cannot, but goes down plump into the soap suds. The operator passes quickly from one to another, till in a few minutes at most the whole ceiling is cleared. If the ceiling is high, the tumbler may be fastened to the end of a stick by attaching a little box to the stick, and setting the tumbler in it. The tumbler must be glass so as to allow the light to pass through, or the fly will not try to escape, and cannot be so well caught in the soap suds. Another cheap and very efficient apparatus for exterminating flies, is made by filling a glass tumbler to two-thirds its capacity with strong soap suds, and covering it with a slice of bread smeared on the lower side with molasses, and perforated in the middle with a hole the size of one's finger. There should be a little molasses through the hole and around its upper edge. For two or three hours very few flies will be caught, but after they begin to ac-

accumulate the liquid will soon be black with them. It is said that flies may be excluded from a room with unclosed windows, by covering the openings of such windows with a net made of white or light colored thread, with meshes an inch or more in diameter; the only condition being, that the light enter the room on one side only; for if there be a through light from window or door, the flies will pass through the net. It is also said that if a bunch of plantain or fleawort be dipped in milk and hung up in a room, the flies will leave. Cold green tea, made very strong, and sweetened will, if set about in saucers, attract flies and destroy more or less of them. So will the liquor of boiled poke root mixed with a little molasses, and spread on plates. Four parts of brown sugar, and one each of ground pepper, and quassia in coarse powder, dissolved in a pint of boiling water, and placed on plates, will also destroy them. Resin, melted in sweet oil or lard oil to the consistence of thick molasses and spread upon writing paper, placed where flies will come in contact with it, will cause the death of every one. Wrapped around table legs or trees, it prevents insects from climbing them. Gilt frames, chandeliers, &c., rubbed lightly over with coal oil, will not be disturbed by flies.

General Remedies for Insects.—The powder of *Coculus Indicus*, which boys use to stupefy fishes, destroys many insects, if scattered about their haunts. Insect powders purchased at drug stores, if genuine, are chiefly or wholly the powdered leaves of a European species of *Pyrethrum*, and will effectually destroy all kinds of insects, lice, &c. The Persian Powder is said to be harmless to man, but certain death to insects. It is the powdered blossoms of the Caucasian vegetable, *Pyrethrum Roseum*, of a yellowish gray color, odorless, tasteless at first, but leaving a burning sensation. The plant will flourish in our country, and seeds will be furnished by the Agricultural Department at Washington City. It is one of the best remedies known, because cheap, perfectly harmless to man and infallibly fatal to insects. Some insect powders sold under different names are said to be compounds of arsenic—arsenite of copper—and other active and potent poisons, the vapors even from which, are exceedingly injurious and dangerous. Red chamomile, sold by druggists, rubbed to a fine powder, and mixed with something which they will eat, then dusted into haunts of insects, is one of the most effective remedies known for all kinds of insects. Lyon's Bug Powders, made of chamomile, it is said made him immensely rich.

Bats, though charged with sustaining bed bugs as parasites, are

nevertheless great insect eaters, and never visit the house of an evening for any other purpose than catching insects for food.

Mice and Fruit Trees.—To prevent mice from gnawing fruit trees, go through the orchard or nursery in the fall and hoe away all litter or trash that would be likely to give harbor to mice, and haul up a little fine soil and tramp it hard over the roots. Or in the fall bank the earth up around the trees six to ten inches high, and remove it in the spring. Tramping the snow around the trees is recommended, and said to be sure, but it is necessary to repeat the operation at least as often as one snow melts and another falls. Small trees are sometimes protected by sheets of tin bent around them; or hollow out a polk stalk, split it on one side, and fit it around the tree. It needs no tying. A good protection may be had by using two pieces of two inch tile, placing them together so as to encircle the tree. At the bottom they may be held together by a pyramid of earth, or fastened top and bottom by a small sized annealed wire, as mice eat off an ordinary string. Tiles of this size or larger when the trees require it, are not very expensive, if preserved for future use. Let the lower end into the ground an inch or more so that the mice will not work under them. Short pieces of lath, placed edge to edge around the trees and tied top and bottom, answer the same purpose. Force the ends a little into the ground, or put the earth around the bottom. Melted tar, applied late in the fall, with a swab, completely covering the tree at the ground, and up the body as far as there is any danger, has been found effectual; so has one pound of tallow melted and mixed with two quarts of tar and applied similarly. A composition of cow dung, clay and coal tar has also been recommended for the purpose. One gallon of soft soap, one pound Scotch snuff, one pound sulphur, and to make these stick, a teacupful of newly slacked lime; all made scalding hot and thoroughly mixed by stirring, then applied with a large paint brush or otherwise wherever there is danger, has been found very effectual, not only against mice, but rabbits and goats likewise. If too stiff add a little water. If the bark of any of the trees is very smooth dip a piece of cotton cloth in the mixture and apply it. One spadeful each of hot slacked lime and cow dung, half a spadeful of soot and one handful of flour of sulphur, mixed with water to the consistency of thick paint, is used by some in the same manner. This has been recommended by Downing. A dry day should be chosen for the application. Paper smeared with coal tar, and wrapped around the bodies of the trees near the ground, has been tried successfully. Where tinners' scraps or iron turners' chips can be had for the asking, if they

are placed around the trees an inch or two deep, they will serve as a great protection and general benefit to the trees. In the absence of these, coal ashes, or leached wood ashes, or even coarse gravel will be found beneficial, removing all grass and weeds before placing them around the trees. Corn soaked in strychnine and placed where the mice will eat it, is relied upon by some.

To Prevent Rabbits Gnawing Trees.—Wind narrow strips of cotton cloth about the bodies of the trees as high as the rabbits can reach. In the spring dry and put away carefully until another winter. Or dip rags in melted brimstone and fasten about the trees. Or plaster the trees with fresh cow dung. Or daub the trees with grease scented with some offensive odor. Several of the remedies recommended against mice are also efficient. Simply newspapers kept bound around the trees are said to be sufficient.

Insects on Trees.—Take of potash, twenty pounds; air-slacked lime, half a bushel; sifted wood ashes, half a bushel; fresh cow dung, half a bushel. Mix in water enough to be of the consistence of white-wash. Scrape off the rough bark, and rub the wash in well with a brush. Keep ants off fruit trees by bending around the trunks of the trees tarred paper.

Apple Tree Borer.—Apply soft soap at the lower part of the trunks of the trees; or scrape off the rough bark and wash with soap or lime and manure; or dissolve one ounce of saltpeter and eight ounces of common salt in a gallon of lye and apply well with a brush. Benj. D. Walsh, of Rock Island, Ills., states that a thorough washing of the trunks of trees with soap about the last of May is a perfect protection against the borer. It is said, upon what appears to be good authority, that newspapers bound around the trees are an efficient protection.

Catterpillars in Apple Trees.—An ounce of prevention is worth a pound of cure: As soon as the leaves of the apple tree fall, look carefully and you will find the eggs of the caterpillar in bands or rings upon the smaller limbs. Scrape them off, and at one blow you destroy hundreds of future depredators. On small trees this can readily be done and should never be neglected. Or wash the caterpillars with hot strong soap suds, using a long handled brush; it destroys the worms and benefits the trees. Other ways recommended are burning, shooting with powder, applying oil, &c.

The following is said to be sure death to the caterpillar: Take a pole of suitable length, fasten upon it some cloth or piece of old carpet in the form of a swab, drive into it a nail leaving a projection with which you can tear open the nest, saturate the swab with coal oil and

apply it to the nest in the morning, before the worms leave to commence feeding. One quart of oil will kill a large number. Some apply the oil with a brush made of stiff feathers.

To Destroy Bark Lice on Apple Trees.—Wash with potash water, or, if not convenient, a strong lye. In the spring, before the buds start, wash the bodies and large limbs of the trees, using a brush or swab. Do this every year. The bark will become green and smooth, and the tree healthy and vigorous. Some put into a strong lye as much salt as will dissolve. Select a damp day. Another remedy is to take one gallon soft soap, half a gallon of lye water, heat to boiling, and add three-fourths of a pint of spirits of turpentine, to be applied while warm, with a paint brush. And another still, to whitewash young apple trees with good fresh slacked lime before the buds start. It will scale off and take the bark louse with it.

For Peach Tree Borers—Peach Worm—Peach Tree Grub.—Scald the stem of the tree well, letting the hot water get well into the ground around the tree, where the grubs do the most harm, and a destruction of both eggs and grub follows. Prof. Mapes says he has never found any remedy equal to hot water, and that he has satisfied himself that a peach tree cannot be injured by hot water. This principle may be applied to other trees and other insects. Lime is also highly recommended. So are wood ashes. The ashes of anthracite coal also. For more certainty many remove the earth from around the trunks of the trees, and crush and destroy the cocoons and borers which may be found in it or under the bark, before making the applications named above.

It is said that if tobacco stems can be procured, a few of them put at the base of the tree in the spring will prevent the borer harming the tree. Ashes and hog manure are no doubt equally efficient. A plaster of soft cow manure is recommended to be applied after the worms are dug out. A funnel shaped hole around the base of the tree, to hold three or four quarts, filled with boiling water, is also recommended. Then fill the holes with a tenacious clay, tramp it hard and leave the surface around cone-shaped and hard compacted. A communication to the Cincinnati Horticultural Society, states that placing stones around peach trees affords harbor for insects which destroy the peach worm in embryo. A writer to the *Country Gentleman* says: Place the scales from blacksmith's anvils around peach trees, and in a short time you will not be able to find a worm there.

In planting peach trees it has been recommended to cut away the tap root close under where the horizontal roots put out, then to drive

a stake firmly, and plant the tree so shallow that after heavy rain the upper side of the roots will become exposed. In this way, it is said, the trees are not so liable to become infested with the grub.

Worms in Pears.—A horticulturist writes that having some fine pears stung by worms, he saved them by inserting in the worm hole the stem of a pear leaf, flexible enough to follow its sinuosities, and crush the intruder in his retreat.—The pears would have been good for nothing otherwise, but after this experiment, they “obtained admirably their maturity, presenting no other trace of the operation than a slightly hardened scar, and an imperceptible depression of contour.

Save your Plums. Remedies for the Curculio.—Pick up the stung fruit and destroy it after it falls. This, if faithfully pursued, will prove successful. Confine poultry and swine in the plum orchards in early spring, when the curculio is coming out of the ground, and at midsummer, when he is leaving the fruit. Drive strong stakes here and there through the orchard for the hogs to rub against instead of rubbing the trees. One certainly effective method of destroying the curculio, and one that is adopted by many, is to shake them off on sheets every day, and then burn them. Those who rightly practice this always secure fine crops. Use a large cheap umbrella, made for the purpose, with a white covering, and an opening or slit between two stiff arms to receive the trunk of the tree. Place it in an inverted position under the tree, and the blow of a mallet on the short stub of a limb will jar all or nearly all the curculio from the branches. The umbrella is to be then partly folded, and shaken at the same moment, by which all the insects are thrown through an opening a few inches in diameter, at the center, made for this purpose, into a pail of hot water, already prepared, or into a shallow vessel of oil of turpentine, and thus destroyed. For small trees, this is a convenient method. Or, when the trees are very large, use light frames of wood, covered with white cotton cloth, made as light as possible. Each piece of muslin is attached to two square frames that may be folded together like a book, throwing the insects together, and, by then inclining it over the vessel of hot water or turpentine and jarring them into it. Two such frames are needed for a tree.

Another way recommended, is to pave the ground with brick, slate or mortar, &c., preventing the insect from penetrating the ground after it leaves the punctured plum. Another still, is the removal of the surface soil from around the tree, in the fall or early spring, and with it the buried insects. Also, the covering of the ground with salt at

midsummer, so as to kill the worm escaping from the fruit. And an application of unfermented stable manure about the tree when the fruit is just set. The placing of lamps set in vessels of soap suds around trees. In this way it is well known many insects may be attracted and destroyed. The syringing of various offensive and poisonous mixtures over the foliage of the tree, to wit: 1. To one pound of whale oil soap add four ounces of flour of sulphur. Mix them thoroughly, and dissolve in twelve quarts of water. 2. To half a peck of quick lime add four quarts of water, and stir well together. When well settled, pour off the transparent lime water, and add the soap and sulphur mixture. 3. Add to the same four quarts of tolerably strong tobacco water. 4. Apply the mixture with a garden syringe to your plum trees, and others that need protection from the curculio, so that the foliage shall be well drenched. If no rain succeeds for three weeks one application will be sufficient, otherwise new applications will be necessary.

It is said that lime sprinkled over plum trees from a bag, sieve or vessel with holes, slung on the end of a pole, will preserve the fruit from curculio, applying it freely as often as the rain or dew takes it off, from the time the blossom leaf begins to fall until the curculio is done working, usually about four weeks. Use air slacked lime in a dry state, and when the tree is wet with dew in the morning, or after a rain. It may be thrown through the tree by handfuls. The same process should be used on cherry and pear trees when the nasty slug begins to make its depredation on the leaves. This is claimed to be infallible against the curculio. Sawdust saturated with coal oil, and spread around the roots of plum trees is also recommended to keep away the curculio. And a correspondent of the *American Agriculturist* says: As soon as the trees blossom, wrap their trunks with cotton or cloth saturated with kerosene oil, a foot or two from the ground, and renew once or twice a week as long as the insect appears. Some have said this has killed their trees.

The *Country Gentleman* recommends rags smeared with gas tar hung in the branches of the trees, and says a judicious use of gas tar will also expel insects from other vegetables. Another remedy, claimed to be effectual for repelling curculio and other insects, is, to bore a hole into the trunk of the tree, fill it with sulphur, and plug it up. To burn soot under the trees at the time the insect commences his ravages, has been also recommended. And to throw a covering over the tree on a still morning, when the plums are beginning to set, and generate a smoke of refuse tobacco underneath. This, too, has

been reported effectual if repeated. The Germans, it is said, sometimes practice the following: About the time the fruit is forming, catch and kill a number of mice, or take pieces of meat and hang them among the branches, and into these decaying bodies the insect deposits its eggs, instead of stinging the fruit. Dr. Underhill, of Croton Point, on the Hudson river, raises a large crop of plums every year by simply planting his trees inclining over the water, where the fruit if stung would fall into the water, and it is never molested by the curculio. There is no doubt that this and several other remedies named are effectual if properly applied and persevered in, but there are many persons who will not be thorough in the practice of any method, and, consequently, seldom or never succeed in securing a crop of this delicious and valuable fruit. To jar off the insects on a sheet and kill them, is perhaps the most commonly practiced, and, if persevered in, is perfectly sure, as well as simple. Other remedies have been recommended, as for instance, a mixture of sulphur, lard and Scotch snuff, applied to the body and branches of the tree, which did effectually repel the curculio, and secured a full crop of fruit, but also killed the tree. Black soap from the tallow chandler's, dissolved in water, and much diluted, with which the trees are syringed directly after the blossoms fall, after a rain, and repeated when washed off, has been tried, it is said, with success. Fresh cow-dung, a little wood ashes, some lime, made into a decoction, with about half a pound of sulphur to the half barrel, thrown over the trees after each rain, has also succeeded. Simply fresh cow or pig manure, dissolved, and the water sprinkled over the trees, has been recommended. It is said a heavy coat of fresh horse manure spread on the ground under the trees, has prevented their ravages. A coop of chickens underneath the tree, and the insect jarred off frequently, has secured crops of fruit. Soap suds and chamber lye, scattered freely under the trees early in spring, also lime similarly applied, has in some instances proved a success.

To Repel Currant and Gooseberry Worms.—It is said that an application of air slacked lime, in early spring, around currant bushes, preserves the foliage from the attack of the chermes, which occasions the unsightly and diseased appearance of curl in the leaves. Dust the bushes with the powder of white helebore, which can be had at the drug stores. This will destroy the worm. Apply it when the bushes are damp. Or stir one ounce of powdered helebore and two ounces of powdered alum with a small quantity of water, until the alum is dissolved and the powder of helebore thoroughly wetted and mixed. Put the whole into a gallon of water, and throw upon the plants by

means of a syringe or watering pot. One application will often be sufficient. A repetition must be made whenever the worm appears. This powder is a poison, and must be kept and used like other poisons. The first shower will clean the bushes, and no injurious effects will be likely to follow from using the fruit.

Spent tan placed around gooseberry bushes preserves them from the ravages of the worm.

To Protect the Gooseberry from Mildew.—Applications made every few days of powdered sulphur to the foliage and fruit of the gooseberry, when the fruit begins to form and increase in size, is said to be a complete protection from the mildew.

Insects in Stored Grain.—A commission was appointed by the French government to inquire into the means of protecting stored grain from the ravages of insects. The commission state, as the result of their experiments, that thirty grains of chloroform, or sulphuret of carbon, put into the interior of a grain pit, hermetically closed, are sufficient to destroy every insect in a metrical quintal (220 lbs.) of corn in four or five days. Or seventy-five grains of sulphuret of carbon, suitably divided amongst the grain, will do it in twenty-four hours. Chloroform operates rather more slowly. The sulphuret, in a still larger quantity, succeeds on grain, laid in a heap and covered with an impermeable tarpaulin.

To keep Vermin from Granaries.—After the grain is in the bin, and made level, we may spread evenly over it a quantity of slaked lime—one quart to twenty-five bushels, or in that proportion. If the rats or mice come upon it, they will do so but once—and will leave the premises. The lime must be fresh slaked and perfectly dry. To keep out insects the lime must be mixed thoroughly with the grain. It can be separated from the grain by running through the fanning mill.

Insects in Growing Grain.—A correspondent of the *North Western Farmer* says: Make a free use of air slacked lime on all crops, even potatoes, and there will be no injury from insects. A very successful wheat grower says: One of the best preventives of the ravages of wheat-destroying insects is early sowing. Another says: Cutting wheat while in the milk, and the straw green, then applying salt liberally to the mow or stack, destroys the wevil, if some time is allowed before threshing. The French remedy, mentioned above, will effectually destroy the wevil.

To Destroy Insects on Plants.—W. S. Carpenter says that the best remedy for worms and all insects on plants is flour sulphur. The *London Cottage Gardener* recommends bitter aloes. Mix half an ounce

of aloes with a gallon of warm water, and apply it to the affected plants by means of a syringe or watering can. Before half an hour you will have clean plants. Solution of aloes is fatal to bed bugs.

Dingler's Polytechnisches Journal says: In scattering chloride of lime on a plank in a stable all kinds of flies, but more especially biting flies, were quickly got rid of. Sprinkling beds of vegetables with even a weak solution of this salt, effectually preserves them from caterpillars, butterflies, mordellas, slugs, &c. It has the same effect when sprinkled on the foliage of fruit trees. A paste of one part of powdered chloride of lime and one-half part of some fatty matter, placed in a narrow band around the trunk of the tree, prevents insects from creeping up it. It has ever been noticed that rats and mice quit places in which a certain quantity of chloride of lime has been spread. This salt, dried and finely powdered, can, no doubt, be employed for the same purposes as flour of sulphur, and be spread by the same means.

Berries of the China tree of the south scattered over the ground kills all insects. Elder leaves scattered over cabbages, cucumbers, squashes, and other plants subject to the ravages of insects, it is said effectually shields them; also that the plum and other fruit may be saved from insects by placing upon the branches and through the tree, branches of elder leaves. It is also said that, the water in which potatoes are boiled, sprinkled over plants, will destroy all the insects. A bright fire of resinous pine, tar, shavings, or any other combustible, kindled in the garden at night, on a platform erected for that purpose, will attract and destroy millions of insects. Dr. Trimble advises treating with tobacco juice all worms and insects that trouble plants, as none but the variety that live upon tobacco plants can stand a decoction of the vile weed.

To Destroy Worms in Garden Walks.—Pour into the worm-holes a strong lye, made of wood ashes, lime, and water. Or, if more convenient, use, for this purpose, strong salt and water.

To Protect Plants from the Garden Flea.—Sprinkle corn meal around the plants and renew after rain or heavy dew.

To Protect Vines from Bugs.—Corn meal sprinkled freely as directed above is believed to be infallible. Boxes without top or bottom, say about fifteen inches square and eight or ten inches high, placed around the vines, are believed to be equally so. Covers to the boxes, of glass, millinet or similar material, are sometimes used, but we think unnecessarily. A pane of glass over each hill, supported at the corners on four small wooden pegs, is said to be effective. Sulphur dusted from a gauze bag upon the vines is a good remedy, and may be ap-

plied to fruit trees and all plants with equal benefit. One of the best remedies is a strong decoction of cow manure and hen manure, applied cold morning and evening. Good for the plants, and bad for the insects. Another remedy, and at the same time excellent fertilizer, is fresh fish or fresh fish offal, put in a vessel of water with a little salt, and allowed to stand until decomposition commences. Dampen the leaves and vines occasionally with the liquid. The odor of guano, cow dung, onions, tomatoes, &c., are all recommended. Some set an onion in each hill, or plant onion seeds around the hill, or as soon as the bugs make their appearance cut up or mash the tops from sets or old onions, and sprinkle them around the hills for successive evenings. Others rely on pulverized hen manure scattered on the hills and around the vines. Covering the hills just before the plants appear with clean, sharp sand, is said to be quite efficacious. Scotch snuff, or equal parts of common red pepper, powdered, and plaster; or charcoal dust; are all popular remedies, to be sprinkled freely upon the vines while the dew is on, and also upon the ground under and around the vines. Rags smeared with gas-tar, also feathers or little wads of cotton dipped in turpentine, have been successfully tried, by placing them among but not touching the vines, and renewing after showers. Bright evening fires kindled among the vines entice a great many insects to destruction. Very thin layers of cotton batting, spread over the plants as soon as they appear, held down by a little dirt on the corners, do not interfere with light or moisture, and protect the vines until beyond the reach of bugs. A decoction of parsley roots and tops; or snuff, flower of sulphur, and soft soap, one pound each, boiled together half an hour in three or four gallons of water; or poppy leaves, stalks, buds, &c., steeped in hot or cold water; or a little opium dissolved in water—any of these may be used by sprinkling slightly over the vines occasionally, it is said with success. Some successful growers use plenty of seed at first, and then at four or five successive periods plant on a new side of the hill, more seed. This supplies an abundance of young plants for the bugs to feed on, and they leave stronger growing plants untouched. When well out of the way of the bugs, surplus plants are dug up with the hoe. A plentiful supply of pumpkin or squash seeds planted near cucumber or melon hills, are said to be an aid, as the insect prefers the thick seed leaves.

Remedies for the Onion Worms.—The following have been recommended as if to be relied on, but we have not tried them: Strew over the bed about half a bushel of pine sawdust to the square rod just before the plants come up. Or, where the onions are four or five inches

high, sprinkle them well with spirits of turpentine. Or with a watering pot apply strong brine once or twice.

To Prevent Grubs from Infesting Radishes.—Strew fine sawdust over them the same as for onions.

Protecting Cabbage from Lice and Worms.—The *American Agriculturist* says: To protect young cabbage plants, surround the stems closely with small flat stones, or chips, or pieces of shingles. Or wrap the bottoms of the stems with strips of paper. At the time of setting out dip the roots in strong brine to kill the white worms. To protect from plant lice, mingle a small handful of well *leached* ashes with the surface earth around the stem and crown of the roots of the plants, when they are set. Also mix it with the surface earth when planting melons and cucumbers.

To destroy cabbage worms, break off a large leaf from the bottom of the cabbage and place on the top, upper side down. Do this in the evening, and in the morning you will find nearly or quite all the worms on each cabbage have taken up their quarters on this leaf. Take off the leaf and kill them or feed them to the chickens, and place the leaf back if there be any more to catch. To keep the little black bug off from cabbages or turnips, sprinkle ashes when the dew is on, and after every rain.

Remedies for the Turnip Fly.—A correspondent of the *Mark Lane Express* says, a simple, cheap, and efficient remedy is sowing mustard among turnips, which the turnip fly prefers—also the black caterpillar. The common English practice of protecting the turnip from the fly is by dusting the row with lime during the night and while the dew is upon the plant. Soot is applied in the same manner. Guano also.

The Potato Bug.—Dressings of salt, lime, ashes, plaster, &c., are all recommended, and are certainly valuable, if for no other purpose, to increase the growth of the potato.

Tobacco Worms.—Half a pound of cobalt, reduced to a powder, to a pint of water, sweetened with white sugar. Two or three drops in the blossoms of the tobacco plant, or in the blossoms of the Jamestown weed set fresh through the field, destroys the moth. Turkeys eat the worms, and are employed for that purpose.

The Cotton-Ball Worm.—The depredations of this terribly destructive insect may be effectually prevented by placing upon stakes set among the cotton, plates containing a mixture of four parts of vinegar and one part of molasses to catch the moths. It must be replenished every evening while the moths last.

Lighted lamps placed in pans of water, or soapsuds, or fires kindled in different parts of the field at night will catch the moths.

To Destroy Wire-Worms.—Nitrate of soda, one and a half tons per acre, sown in powder, will prove a remedy for this pest. Sow in damp weather, when the ground is moist, and it will also prove one of the greatest fertilizers. 2. Soak the seed over night in copperas water or niter. 3. Soak seed corn in strong salt water before planting. 4. It is said that if two successive crops of buckwheat be grown on the land where the wire worms are, it will drive them off or destroy them. 5. Sow twenty-five bushels of lime, or ten bushels of salt, per acre. 6. Hiram Spear, of Springfield, Bradford county, Pa., says, tobacco will effectually prevent wire worms from destroying seed corn. Boil one pound of good tobacco in water enough to cover a bushel of seed corn; pour the liquid on boiling; stir till cool; spread the corn to cool, and plant. He says the root and sprout will partake of tobacco sufficient to prevent the worms touching it. 7. Fall plowing, either deep or shallow. 8. Spread short straw from the threshing machine on the land, and plow it in; the worms will crawl into the straw, until stopped by the joint, and there die.

The *Mark Lane Express* says that high farming is as destructive to vermin as to weeds, and it is rarely that the devastation committed on highly cultivated land is very serious.

Cut Worm.—The most thorough mode of destroying the cut worm, is to fatten hogs in the truck patch or garden, after the crops are taken off in the fall or winter. They destroy the larvæ. Or pick them up by hand early in the morning each successive day, until none are left. Choice plants may be protected by wrapping paper about the stems. Snuff, strong liquid manure, powder, charcoal dust, etc., will protect, provided they can find plenty to eat elsewhere. Protect vines by planting plenty of seed. Set traps for the moths.

To Kill Insects on Cattle.—Well kept stock, housed in clean, well littered, whitewashed stables, are rarely, unless they take them from other cattle, troubled with vermin.

One of the best remedies for lice on cattle is the water in which potatoes have been boiled, thoroughly rubbed in so as to wet the skin. It is perfectly safe, costs nothing, and is easily applied. And there is no harm in repeating it as many times as may be necessary. 2. Another is to boil white oak bark, and with the liquid wash the animals around the neck and over their backs. 3. Water lime is also good. 4. So is plaster, rubbed thoroughly in the hair. 5. And a very effectual remedy is to thoroughly wet the affected parts with alcohol. On

a rainy day, when the hair is partially wet, less alcohol will be required. Repeat in about two weeks, if necessary. 6. Apply freely lamp oil from the head along the back, also behind, and in spots on the sides. This is regarded effectual. 7. Dry wood ashes, taken fresh from the stove, and rubbed well into the hair, keeping the animals dry for a few days, is said to be first rate, especially with calves. 8. Or, keep the stable floor sprinkled with wood ashes for two weeks after the cattle are brought to the barn. 9. If warm weather, apply soft soap, rubbing to a lather; let it remain a few hours. 10. In cold weather, hog's lard will prove an effectual application. 11. Take tobacco and boil it in water until very strong, then wash the animal freely with the liquid two or three times. 12. Cover with a thick blanket, except the head, and blow tobacco smoke under it, filling the hair full. This will not destroy the nits, but a second smoking will finish that generation. Recommended particularly for calves. 13. Rub the parts well with a mixture of Scotch snuff and soft soap. 14. Coal oil, thoroughly rubbed into the hair, is said to be safe and sure. 15. A little calomel sprinkled on the back. An ounce is sufficient for twenty head of cattle, or more. 16. A strong decoction of larkspur, rubbed all over until the hair is thoroughly wet. 17. Mix yellow snuff with lamp oil, and rub on where they will not lick it. 18. Any greasy matter, well rubbed in, says the *Massachusetts Plowman*. 19. It adds: Fine sand sifted on them will drive off lice: the only objection to sand is that it causes an itching on old cattle in the spring. 20. Pulverized copperas and sulphur, in the proportion of one teaspoonful of copperas and two of sulphur, with a little salt, mixed in half a bushel of meal, given twice a week for three weeks, to one hundred head of cattle or hogs, is said to be a complete remedy. 21. Feed them once in two or three days fine salt and sulphur, about one part sulphur and two parts fine salt, when the weather is not too severe. If very cold, do not let them be too much exposed. Also apply oil to the parts most troubled. 22. Tanners' oil is good, to be rubbed on the parts.

Whatever is used, cattle with lice should be brushed or curried every day or two.

To expel fleas from animals: Oil of wormwood, or oil of pennyroyal—a few drops rubbed along the spine. The application may be repeated and extended if necessary.

To Prevent Flies from Teasing Horses.—Take two or three small handfuls of black walnut leaves, upon which pour two or three quarts of soft cold water; let it infuse one night, and pour the whole next

morning into a kettle, and let it boil for fifteen minutes. When cold, it will be fit for use. No more is required than to wet a sponge, and, before the horse goes out of the stable, let those parts which are most irritated be smeared over with the liquor. Keep it in the stable. Indigo weed, stuck plentifully about the harness, tends to keep flies from horses. Some make a decoction of indigo weed, and others of pennyroyal, and bathe horses with it to defend them from insects. Wash with diluted linseed oil, or benzole, or rub occasionally with smartweed.

Ticks on Sheep.—Sulphur fed to sheep is pronounced a certain remedy against the ticks which frequently infest, very injuriously, these animals. John Johnson, of Geneva, N. Y., says, if sheep are fed grain or oil cake, as they should be, he will warrant them from ticks. Open the wool on the back of the sheep, from the head to the hips, and strew in a teaspoonful of yellow snuff, mostly on the neck and shoulders. Or, arsenic, one pound, finely powdered; potash, twelve ounces; common yellow soap, six ounces; rain or river water, thirty gallons. Boil the ingredients together for fifteen minutes. After shearing, the ticks leave the old sheep and go upon the longer-wooled lambs. In about two weeks make a strong solution of tobacco and dip the lambs in it. The stems of tobacco that can be had of cigar-makers will answer.

To Rid Poultry of Vermin.—Clean out the nests, put in fresh straw, grease or whitewash the roosts, whitewash the whole poultry house, purify it of everything that can give shelter to an insect, and take care that the hens have a wallowing box, well supplied with dry wood ashes, renewed by a little addition every day or two. Feed sulphur occasionally in the food, keep a constant supply of lime for the hens, and keep them fat. Make roosts of sassafras poles, and scatter sassafras bark about the hen house and in the nests. Or boiling hot lime-water by the bucketful, dashed upon and scrubbed thoroughly into every part of the hennery. Apply sweet oil to the tops of their heads, under their wings, and elsewhere. Lard will answer.

To Preserve Bees from Moths.—Take some indigo reduced to a fine powder, and place it at the mouth of the hive, so that the bee must pass over it to enter; a portion will adhere to his feet and be carried in. The indigo will be agreeable to the bee, but poisonous to the moth. Put in dishes and set among the bees at evening an agreeable mixture of sugar or molasses with vinegar and water, and do not destroy spider webs near the bee hives. Both these are traps for the moth. A man in western New York who breeds minks for their fur,

by keeping his minks and bees close together, has found that they catch and eat every miller that comes near them.

To prevent Crows from Pulling Corn.—Feed them. Do not kill them. Sow corn broadcast through the field, and they will not touch that which you have planted. One-half bushel of corn, soaked twenty-four hours, and sowed on ten acres, will not only save time, but preserve the crop. Birds of all descriptions should be taught that man is a friend and not an enemy, and they will return the friendship. Some roll their seed corn in tar, and say it is effectual. A very common method is to kill one crow, and hang up in the field, or lay it in a conspicuous place with some of the feathers scattered around. If a crow cannot be had, a black hen may answer.

Those who wish to destroy the birds frequently soak some corn in a solution of strychnine or arsenic, and scatter over the field; or, removing the white from half a dozen eggs, insert a little strychnine, and place them around the cornfield.

To Protect Fruit from Birds.—Very early in the spring place wren boxes on the cherry trees. The wrens will drive away other birds. The entrance to the boxes must not be large enough to admit the bluebird. Or else plant trees enough to serve both yourselves and the birds. Or suspend small looking glasses, or pieces of broken ones, in the trees. A windmill in the tree is sometimes resorted to.

The following plan I once saw succeed, says a recent writer: An old gardener got a hawk stuffed in what he called a hovering position, put it on the end of a long wire, attached the wire to the top of a tree, and thus had the hawk suspended in the air as if it had been alive. He had, however, another hawk which really was alive put into a cage, and had the cage put into the same tree where the dead hawk was. The hawk in the cage was by no means mute, and I may add that I scarcely ever afterwards saw birds in the garden.

Spare the Birds.—If you wish to secure the assistance of the nicest little garden help in the world, put up plenty of bird boxes. The best remedy for insects is to preserve the birds. They are the natural insect destroyer. It is their decrease that has increased destructive insects. In France, the destruction of small birds has gone on increasing, and in a corresponding ratio has also proceeded the increase of those insects and reptiles which prey on the crops of grain and all kinds of vegetable food; and the public mind has become alarmed, until investigation has demonstrated the fact that the destruction of the beautiful feathered songsters may, if continued, lead to something like positive famine.

Birds are a joy about any house. If there is any luxury that is worth most at the least cost, it is the music of the wild singing birds. Most singing birds build their nests near human dwellings to avoid their natural enemies, the birds of prey, but every house provides a more secret and dangerous enemy in the sly old cat. Visiting at a house where an old lady lived alone, I was struck with astonishment at the large number of singing birds around the house, and expressed my surprise. The worthy inmate explained it all in three sentences: She had no children, she shook her table cloth on the green grass, and suffered no cat near the house.

If suitable bird houses are provided for martins, bluebirds and wrens, they will almost always be filled. Bluebirds and martins want compartments about four by six inches. The wren should not have more than three and a half or four inches by five. Two pairs of wrens will not occupy the same house. Place them some distance from martin and bluebird houses. Bird houses should be well ventilated.

Several hundred wren houses have been built in Union Square, New York, which are not only occupied by wrens, but several other kinds of birds, and they serve to keep the park and neighborhood almost free of insects. One pair in the yard of Mr. Nash hatched and reared ten young ones in one season, and they acted as perfect scavengers of bugs and worms in the neighborhood.

The birds may pluck a few of your cherries and berries, but the insects they will destroy will tenfold repay you for their fruit banquet. Better provide extra what the birds require, than to destroy the providential birds. Even the jay, the blackbird and the crow are a part of the wise economy of nature, if man will but learn all their natural uses. But if you will not spare these, spare at least the household birds—the tiny hummer, the delicate wren, the gentle robin, the rollicking oriole, and all the little yellow and brown-winged beauties that haunt the door-yard in quest of their daily feast of crumbs. Of all lesser animate things the Heavenly Father has sent us, none are more worthy of our affection than these airy songsters, who a thousand times repay our care for them with their jubilant music.

To Prevent Cats Killing Chickens and Birds.—Harriet Martineau gives the following as a sure preventive: When a cat is seen to kill a chicken tie it round her neck, and make her wear it for two or three days. Fasten it securely for she will make incredible efforts to get rid of it. Be firm for that time, and the cat is cured—she will never again desire to touch a bird.

To prevent Dogs going Mad.—It is said that a small portion of the flour of sulphur mixed with their food or drink, during the spring months, is practiced in Europe to prevent the disease from breaking out among the packs of hounds which belong to the English noblemen, and that it is a certain preventive. A celebrated German physician affirms that madness is principally caused by the numerical disproportion of the two sexes, most of the female dogs being killed immediately after birth, while the male dogs are allowed to live.

To kill Fleas in Dogs.—Rub them well over with whisky—it acts like magic, killing them instantaneously; if all are not polished off by one application, another will be necessary.

Biting Dogs.—It is an unpleasant situation to be attacked by a dog; if you are so circumstanced, never attempt to run; try throwing a stone at him, or present your hat in your hand, and when he has seized it, hit him with a stick across the nose or fore leg. These are the most vulnerable points in a dog; a blow on any other part of the head but the nose will not hurt him. If a dog comes up to you and growls, and will not be friendly, do not withdraw from him; put on a bold face, and stretch your hand toward him, keeping it quite still—if you withdraw it after stretching it out he will bite you. The dog will come up and smell the hand, and having once done this, will be your friend.

To Prevent Foxes Killing Lambs.—Take a red woolen flannel string, say three quarters of an inch wide, saturate it with sulphur and grease, give it a slack twist, and tie it around the lamb's neck. Thus serve all, taking off the string about the first of September. Do not tie too tight.

Skunks.—It is true that the poor, despised, but seldom-kicked skunk, is sometimes a troublesome visitor to the poultry-yard, but for the few chickens he eats, the quantity of mice, worms, bugs, beetles and other pests that he destroys is simply enormous. He lives almost exclusively upon insects. He also takes possession of the apartments of the woodchuck, and thus often expels this unmitigated nuisance from your clover fields, turnip patches, and gardens.

Squirrels.—The best way to prevent the striped squirrel, or “chipmunk” from digging up seed-corn is to give him plenty to eat on the surface. What is half a bushel of corn sown broadcast for the squirrels to pick up, when it will save the seed of a large field harmless. Coating the seed with tar, which is done by mixing a pint of tar in a pail of warm water, and putting the corn in it, will prevent them from eating it. To make it pleasant to handle, roll it in dry plaster. Or,

sprinkle a little flour sulphur on the wet seed. It will adhere and give it an odor that all little pests dislike. If you wish to kill them it may be done by poisoned corn.

Toads.—There is no animal more harmless, and few that do the farmer more good than toads. Their whole food is of insects injurious to the farmer. In a garden the toad is invaluable. One in a milk-room will be constantly engaged in catching flies and bugs.

Moles.—In all Russia laws are enacted to prevent the killing of moles. The Royal Agricultural Society's Transactions contain the following: Every year 60,000 bushels of seed wheat, worth £30,000, are destroyed by wire worms. This prevents 720,000 bushels from being grown, worth £300,000. If our farmers and others, instead of killing moles, partridges and pheasants, would protect them, 720,000 bushels more wheat would go every year into the English markets. But the creature designed by a kind Providence to perform His chief part of this immense good is the mole. Some years since I had two fields, one of which was full of wire worms, the other perhaps a third full. My crops failed on these fields for the first two or three years, but afterward improved rapidly, for I bought all the live moles I could find at three shillings a dozen, and then two shillings a dozen, and turned them into these fields. I had eight quarters of barley per acre and seven of wheat where the moles were at work all summer, making the ground like a honey-comb. Next year, my wire worms being all cleared out, my innocent little workmen who had performed for me a service beyond the powers of all the men in my parish, emigrated to my neighbor's land to perform the same service.

Weeds.—Land should be properly cleaned of all weeds, so as to give the whole strength of the soil to the crops. "A lazy man's farm is always dressed in weeds as if he were dead and it was his widow." Let every one always pull up every noxious weed met with on the farm, and compost your manure, and you will be surprised to see how soon you will rid yourself of this pest. Still nothing but clean culture, with some hoed crop, will rid the land of all weeds.

Rid, now, your fields of one year's seeding,
And save the toil of seven years' weeding.

How to kill the Canada Thistle.—This weed is execrable, and forever to be detested, hateful to sight or touch, pronounced by Linneus, *the greatest pest of the earth*, and by Dr. Darlington, in his history of Weeds, called the *cursed thistle*. It has a malignant vitality. Its roots

creep under ground, and its seeds multiply and fly endlessly above ground. The only way to exterminate them is to *never allow them to go to seed*. Pennsylvania has a law whereby it is finable ten dollars for each complaint, for an individual or corporation to allow any of the seeds of this pestiferous weed to ripen upon their premises. Let every State enact a similar law, and enforce it to the letter. It has been calculated that one plant of thistle produces over *eleven thousand seeds*, enough to stock two and one-fourth acres with plants three feet apart. Let not one therefore go to seed on the farm, or between the fences, or on the highways. To have these thistles on the farm, without effort at extirpation, ought to be as disgraceful as to have vermin on the body. An experienced farmer says he has found that a heavy crop of buckwheat, followed by a crop of oats seeded with clover will almost entirely eradicate them.

To Destroy White Daisies.—In some soils and localities, get in better grasses and they will run out this pest. This may be done in many instances by giving them a top dressing of yard manure or compost, aided by plaster, sown a bushel an acre. Or cultivate a hoed crop, with thorough tillage, and stock heavily with the grasses most natural to the soil. Simply sowing plaster sometimes is sufficient. Daisies should always be cut when quite green, to prevent the seed from maturing and scattering on the soil. When so cut, they make good fodder.

To Eradicate Snap-Dragon.—This is known also as Butter-and-Eggs, Jacob's Ladder, and by a variety of other names. Spread over the spots where it grows, swamp grass or any other litter of little value, three or four inches thick, and lay upon it sticks, stone, or earth, to prevent its blowing off. This effectually smothers the weed, and of course everything else. Or give a thin coating of fine salt.

Milk-Weeds.—To destroy any weed, like the milk-weed, which extends beneath the surface by creeping stems or roots, *it must not be allowed to breathe*. Cut every plant as far below the surface as possible, the first moment the tip of its stalk appears, by the means of a chisel set on the end of a spade handle—unless the soil is so loose as to allow pulling to bring up a longer portion of it. Watch constantly for a few months, and keep them all below ground, and they will die.

To Destroy the Plantain.—Cut off the root below the ground with a narrow tool; or, drop a few drops of oil of vitriol on the crown of each growing plant; or, spade deep and reseed at the rate of two bushels of grass seed per acre, very early in the spring.

Clearing off Rocks.—Rocks weighing three or four tons or less heat-

ed by keeping a brisk fire over them for an hour or so, will crumble to pieces by dashing a few buckets of water on them while hot. Boulders and rocks are often more economically disposed of by digging a hole partially under them, large and deep enough to bury them beneath the reach of the plow, then rolling them in than by any other means. Sometimes it is necessary to prop up the rock while digging to prevent danger of its falling in too soon.

Blowing up Stumps.—W. A. Gill of the Columbus, Ohio, Agricultural Warehouse and Seed Store, states that he cleared a stumpy twenty acre field, just north of that city, some years ago, by the aid of gunpowder, so cheaply and expeditiously, that he thinks it better than any patent invention in the market. The plan is this : Select a solid place in a large root, near the ground, if an oak or any stump with a tap root, and with an inch and a quarter augur, bore in, slanting downward, to as near the heart of the base of the tap root as you can judge ; then put in a charge of one or two ounces of powder, with a safety fuse, and tamp in dry clay or ordinary tamping material, to fill the hole, some six inches above the charge ; then touch fire to the fuse, and get out of the way. The blast will usually split the stump into three pieces, and make it hop right out of the ground. If the charge is put in too high up, the blast will only split the top of the stump, without lifting it.

ON FIRE AND LIGHTS.

Precaution Against Fire.—Keep matches in metal boxes, and out of reach of children. Wax matches are particularly dangerous, and should be kept out of the way of rats and mice. Fill fluid or camphene lamps only by daylight, and never by a fire or light. Do not deposit coal or wood ashes in a wooden vessel, and be sure burning cinders are extinguished before deposited. Never place a light or ashes under a staircase. Never take a lamp to examine a gas meter or gas pipes inside of a building. Be careful never to place gas or other lights near curtains. Never take a light into a closet. Do not read in bed by candle or lamp light. Place glass shades over gas lights in show windows, and do not crowd goods near them. No smoking should be permitted in warehouses, particularly where goods are placed or cotton stored. When furnaces are used, the principal register should always be fastened open. Stove pipes should be at least

four inches from wood-work, and guarded by tin. All hatchways or openings in the floors of stores, factories or warehouses, should always be closed at night.

The awful and harrowing circumstances of the recent catastrophe in the Cathedral Church of Santiago, in South America, whereby more than two thousand human beings (chiefly women,) were burnt to death should be a warning forever to school trustees and others having control of large places of assemblage.

The adage says of fire: it is a good servant but a hard master.

To Protect Staircases from Fire.—A strong solution of alum applied to your wooden staircase will prevent it from rapid ignition and burning with flame, in case of fire on your premises. An application of the sulphate of ammonia, the tungstate of soda or the silicate of soda, will effect the same object, but alum is the cheapest substance.

To put out Fire in a burning Chimney.—In cases of fire in the chimney, it is an excellent plan to put salt on the fire in the grate below, as it acts chemically on the flaming soot above. This has been found to extinguish the fire in a short time, and deserves to be more generally known. Put a gill or more of salt on to the fire in the stove; then close the stove and draughts as tight as possible. The air will condense and quench the flame.

A handful of flour of sulphur thrown on the fire is also recommended, the doors and windows to be shut tightly. A wet blanket or other woolen article held or fastened before the fireplace so as to exclude the air will also smother it out.

To Extinguish Fire.—It is said that a solution of pearlash in water, thrown upon a fire extinguishes it instantly. The proportion is a quarter of a pound dissolved in hot water and then poured into a bucket of common water.

The French paper, "Galignani," tells the following:—"An apothecary at Nantes has just discovered, by the merest accident, that ammonia will put out fires. He happened to have about seventy litres of benzine in his cellar, and his boy, in going down carelessly with a light, had set fire to it. Assistance was speedily at hand, and pail after pail of water was being poured into the cellar without producing any effect, when the apothecary himself took up a pail which was standing unused in a corner, and emptied the contents into the cellar. To his astonishment, the flames were quenched as if by magic, and upon examination he found that the pail, which belonged to his laboratory, had contained a quantity of liquid ammonia. The result is easy to explain on scientific principles; for ammonia, which consists of eighty-

two parts of nitrogen and eighteen of hydrogen, is easily decomposed by heat; and the nitrogen thus set free in the midst of a conflagration, must infallibly put out the flames. A large supply of liquid ammonia, properly administered, would be the promptest fire-extinguisher ever imagined."

Economy of Fuel.—There is much homely truth in the old proverb—"economy is wealth." A saving effected in the consumption of any article, such as fuel, with the attainment of equally favorable results, amounts to an increase of wealth in proportion to the value of fuel economized.

Wood and Coal.—By experiment on the Baltimore and Ohio Railroad, it was found that one pound of Cumberland coal was equal to 2.55 pounds of pine wood. On the Reading Railroad it was shown that one pound of anthracite was equal to three pounds of wood. For relative value of different kinds of wood, see table.

Best mode of piling Firewood.—D. Currie says, it may benefit some of your readers to know that firewood for next year's use is much better when piled with the bark side uppermost, for wood piled with the bark side down is not so dry as when the bark is uppermost, besides when you come to handle it again the bark is liable to fall off, and go to loss, owing to the wet in summer getting between the bark and the wood.

But it is a better plan to set wood on end than to put it in cord-wood piles. Commence by setting them two and two in a row, the bottoms a foot or more apart. Then lean up sticks top end down on either side until the rick is as wide as you choose to have it, after which form a ridge by laying sticks lengthwise on the top, when you may shingle your pile with split wood so that the pile will scarcely wet at all, and instead of the wood rotting it will season thoroughly and remain sound. Railway companies have pretty generally adopted this plan.

Twice the amount of heat is said to be obtained from firewood when dried and seasoned under cover, as if seasoned in the open air.

A woodsman says the best way to season wood is to girdle the trees in June, and let them stand until the next winter.

Splitting Wood.—Take a block of hard wood, say two feet or more in diameter, and of convenient length, set it up endwise, and in the middle dig out with an augur and chisel, a hole seven or eight inches in diameter, and about six inches deep. This will hold the stick upright, and they can be split into several pieces without handling, ma-

king the work easier, and lessening the danger of the boys cutting their feet.

A good wood pile is one sign of a good home.

Economizing Coal.—The *Scientific American* gives the following useful hints upon this subject, which are confirmed by every one's experience who understands the philosophy of coal fires:—

“A good bright fire can be steadily maintained with coal, with less trouble than with any other kind of fuel, but not by raking, poking and piling in green fuel continually. After breakfast the fire should be cleared of ashes, if there are any, and fresh fuel put on to fill the grate moderately. Let the oven damper be turned up, so as to heat it, and leave the small top door open, more or less, according to the intensity of the heat required. In this way air enters over the top of the fire, and maintains a far better combustion and consequently greater heat than when the draft dampers are thrown open. A washing can be done or ironing accomplished with one-third less coal than is generally thought necessary to use. So far as sifting ashes for the cinders they contain is considered, it is hopeless to expect much change. Hundreds of poor families in cities live off of the waste of their improvident neighbors, and in this way there is something used which would otherwise be lost; but it seems to us that charity should be practised in a different and more positive manner. If the proverb be true that ‘charity begins at home,’ then we have a still stronger argument against the wasteful practice. Cinders will burn admirably in small cylinder stoves, and heat a nursery or a laundry as hot as it should be. Every shovel full saved is a shovel full of coal put in the cellar, and a hint to the wise is enough on this point.”

How to Kindle a Coal Fire.—Whoever has suffered the annoyance of seeing the fire go out soon after it has been lighted will excuse the insertion of the following suggestions: The better way is to have some pieces of very choice inflammable coal, and to lay a few pieces at first on the bottom bars, but without covering them entirely; then lay on the paper or shavings, then the wood, and on that some pieces of round coal of the size of eggs, and no small coal: when the whole is kindled, let it burn up before any more coal is added. If a fire is thus laid and kindled, there is no reason why it should go out, and it ought to burn up with certainty when left to itself.

It has often been condemned as a bad plan to throw too much coals on the fire at a time, as by this a great deal of the hydrogen is distilled off, and escapes up the chimney without catching fire, which is absolute waste.

Important to Coal Consumers.—The United States Circuit Court at Philadelphia, have decided that the weight of a ton of coal is 2,240 pounds, instead of 2,000 pounds.

Corn Cobs for Fuel.—A farmer in La Salle County, Ill., has made his own corn cobs, with some shavings, and a load or two of coal each year, supply his fuel for several years. He thinks that every farmer who raises two hundred bushels of corn might keep one fire going with the cobs.

Grates.—It was a doctrine first taught by Count Rumford, that the great quantity of iron usually put into grates abstracts much more heat from the fire than it can give out to the apartment, and therefore occasioning a loss of heat, and, consequently, a waste of fuel. This is certainly quite true in principle; and it is by reference to principles, that the merit of inventions or constructions are to be determined. Making the fire burn against brick or stone instead of iron, is of great importance. Iron has undoubtedly many bad qualities when used in great quantity about a fire; and, were economical principles alone considered, the less of it employed in a grate the better. Brick or stone cheeks in the grate are by much the best for the fire to burn against; and those who are anxious to have the best possible open fires, we advise to have them. But the iron mongers abhor them. Iron covings are however the most durable, and are to be excused on no other grounds, iron throwing out much less heat than non-conducting materials, like stone and brick. It is desirable to have the grates as low as possible.

Stoves.—The Russian stove is the most sensible form of heating a house. Few of us use stoves large enough. Mine are very much larger than those in common use, and are never heated to a red heat. There is nothing more unhealthy than a red hot stove in a close room, unless it is a house heated with a hot air furnace, without ventilation.

It is said that when iron is not heated above 212° it has no injurious effect upon the air.

To Stop the Cracks of a Stove, and prevent the smoke from escaping, use wood ashes and common salt, wet with water.

To Keep a Stove Bright by Two Applications a Year.—Make a weak alum water, and mix British lustre with it, perhaps two teaspoonfuls to a gill of water; let the stove be cold; brush it with the mixture; then take a dry brush and rub it till it is perfectly dry. Should any part before polishing, become so dry as to look gray, moisten with a wet brush and proceed as before.

To Remove Clinkers from Stoves.—Some kinds of coal are liable to

form clinkers which adhere to the fire brick lining of stoves, grates, and furnaces, and become a source of great annoyance, as they cannot be removed by usual means without breaking the fire brick. When the coal is all aglow, throw on half a dozen broken oyster shells, cover these over with fresh coal, and when all are red hot, the clinkers are doughy and easily removed.

To Prevent Stoves from Rusting when not in Use.—Oil them with the heaviest portion of petroleum. As petroleum contains no oxygen and absorbs none, it is peculiarly adapted for preserving iron from rust. But as the light portion soon evaporates, the heavy portion only is suitable for this purpose.

Fire in Summer.—We have visited many farm houses since the advent of stoves, in all the months usually supposed to be warm, and found that the stoves had all been carefully stowed away in Summer quarters. Even the cook stove is turned out of the kitchen into some "lean-to" shed, and not a single chance left throughout the house to dry or warm a wet and shivering mortal. This is a great error. There is not a month in the year that a farmer can safely do without fire. It not only adds to his comfort, but is a great purifier of the air of the house, and promoter of health, and no farm house should be without the means of making the influence of fire felt in every room whenever a cold or wet spell of weather occurs. In our opinion, it is a great mistake to take down all the stoves in summer, in town or country, in houses that are unprovided with fireplaces.

How to Carry Live Coals in the Hand.—A savant one day deep in abstruse studies, was interrupted by a little knock at the door; a young girl asked him for a few coals to kindle her fire. "But what will you put them in?" said he. "Oh! that's easy managed," replied the child, who filled her hand with cold ashes, and put the hot coals on the top. The doctor, surprised, threw aside his books, saying: "With all my science I should never have thought of that."

The Economy of Lights.—Cost of Oils for Light Compared.—E. N. Kent, of the United States Assay Office, furnishes the following table:

MATERIALS.	LAMP USED.	Retail Price of Oil per gallon.	Cost of an equal amount of light.
Kerosene Oil,	Kerosene, ...	\$1 00	\$ 4 10
Camphene,	Camphene, ...	63	4 35
Sylvic Oil,	Rosin Oil, ...	50	6 05
Rape Seed Oil,	Mechanical, ...	1 50	9 00
Whale Oil,	Solar, ...	1 00	12 00
Lard Oil,	Solar, ...	1 25	17 00
Sperm Oil,	Solar, ...	2 25	26 00
Burning Fluid,	Large wick, ...	87	29 00

Cost of Oil and Candles Compared.—Dr. Ure gives the comparative cost of an equal amount of light, in cents, per hour, from the following substances:

	PER HOUR.
Carcel lamp, with sperm oil, ...	1½ cents.
Wax candles, ...	6 cents.
Spermaceti candles, ...	5½ cents.
Stearic acid candles, ...	4½ cents.
Molded tallow candles, ...	2½ cents.

Economy of Kerosene Oil.—From the above it will be seen that kerosene oil is the least expensive of all fluid light-producing substances; and as it is now refined and burnt in improved lamps, we believe it to be a very agreeable substitute for tallow candles; but whether cheaper or not, can only be determined by actual experiments in different households, comparing the cost per gallon with the value per pound of tallow, and the light produced, or the light required. Many a bright pair of eyes have been dimmed in consequence of inferior lights, and for this reason, if for no other, the question, What light is most economical? becomes a very important one.

Petroleum—Coal Oil.—The *Western Christian Advocate* says: Petroleum, when properly clarified, possesses greater illuminating power than that of any other kind of oil. A lamp with a flat wick six-eighths of an inch broad, supplied with petroleum, gives light equal to 7 15-100 candles, which if fed with the best olive oil, the effect is that of 2 20-100 candles. Again, petroleum does not congeal on the wick of a lamp, and is much cheaper. The *Scientific American* says: Light from petroleum costs about one-third as much as the same quantity from gas, at New York prices, and the petroleum light is better for the eyes, and of superior quality in every respect.

Explosiveness of Coal Oil.—Very light coal and rock oils should be used with great caution for burning in lamps, as they are fully more volatile and equally as dangerous as the old explosive lamp mixtures of alcohol and turpentine. One pint of the old brandy-colored oil gave as much light as a quart of the clear light oil, which though quite cheap, free from the fetid smell of old coal oils, and not nigh so liable to smoke, obtains these qualities at the expense of durability. The same authority says again that coal oil is not explosive, but some makers are in the habit of drugging it with other ingredients so as to render it possibly unsafe. Get a good article from a reliable manufactory, and it is as safe to use as a tallow candle.

To Detect Explosive Coal Oil.—The *Philadelphia Ledger* says: To detect explosive coal oil, pour a small quantity into a saucer, and bring a lighted match slowly down to it. If explosive, the oil will blaze and flash up almost like powder; if not explosive, it will not burn at all. It adds that the latter only is safe for use.

Coal oil and lard oil, mixed half and half, may be burned in any common lamp, and is by many preferred to pure petroleum.

Blowing out Kerosene Lamps.—The danger of blowing out kerosene or carbon oil lamps from the top is greater than people generally suppose. There are several instances on record where lives have been lost by the explosion of lamps from this practice. The following explanation of the causes that produce the explosion are worth considering and heeding:

First. The oil in the lamp is generally low, leaving more room for gas.

Second. The gas is very inflammable, and will always explode when ignited.

Third. In blowing the blaze down, it ignites the gas.

The inference is, a lamp should never be blown out from the top. The wick may not perfectly fill the tube, and the flame may go down when the gas comes up.

Fourth. The less oil in the lamp the greater danger.

Burning Kerosene Lamps Turned Down Low.—One of the most prevalent and injurious modes in using kerosene oil lamps is the turning down very low of the flame in order to darken the room as much as possible, and yet keep the flame ignited, so that it may be turned on full without trouble. This is often done in sick chambers, or when the lamp will be needed by some one coming in late. It is often very convenient, but always exceedingly hurtful. Gas light, or burning fluid lamps may be thus used, but kerosene requires a great amount of oxygen in order to consume poisonous carbonic acid gas. The chimney is made large and the flame kept up brightly in order to cause a strong draft, and draw the oxygen through the lower portion of the chimney. While the flame is large, sufficient oxygen is drawn in to consume, or rather be jointly consumed with the carbonic acid gas, but if the flame is too low sufficient oxygen will not be drawn in to the chimney, and the carbonic acid gas is not consumed, but escapes through the chimney top into the room in large quantities. Here it is a most deadly poison, and if the room be small and kept tightly closed, a single kerosene lamp in this condition would kill a weak person and materially injure any one. One might as well leave their gas

jet turned on without being lighted. The positive harm caused by turning down the flame of a kerosene lamp to the lowest possible point is very great, and it should never be done. We have explained the matter at length, in order to make the people understand it, and thereby induce them to follow the advice given.

Kerosene Lamp Wicks.—Take cotton flannel, of which all have pieces, and fold it up three thicknesses, just wide enough to go into the tube, and catch the edges with coarse stitches.

To prevent Lamp Chimnies from Cracking with the Heat of the Flame.—One who claims to have thoroughly tried the experiment, says: Put the glass chimney in lukewarm water; heat to the boiling point, and boil one hour, after which leave it in the water till it cools.

Common Burning Fluid.—This is a composition made of four quarts of alcohol, (strength, 95 per cent.,) and one quart of refined turpentine. The latter is added to the alcohol, and the whole agitated until a thorough mixture is effected. If this fluid were not so dangerous, it would be more generally used, because it is so cleanly and has such a pleasant odor. Any quantity, according to the foregoing proportions, may be made at one time.

Another Burning Fluid.—Alcohol, three gallons; camphene, one gallon; gum camphor, one ounce. Dissolve the camphor, and then mix.

Smoking Lamps.—Soak the wick in strong vinegar, and dry it well before using it. It will then burn both sweet and pleasant, and not smoke.

To Protect Gas Meters from Frost.—As winter approaches it is well to guard against gas meters being frozen up. All that need to be done is to enclose the meter in a box, packing in a quantity of sawdust.

Blowing Out Gas.—John Rose, of Fairfield, Iowa, went to bed at the Briggs House, in Chicago, a few nights ago, blowing out the gas, instead of turning it off. He died of suffocation during the night. This is only one of numerous deaths thus occasioned. Never *blow out* gas.

To Refine Tallow for Candles.—Boil the tallow in water just made slippery to the taste with ley. When cold, cut out and scrape from the bottom all impurities. Then boil the tallow slowly half a day in a kettle of water, in which one pound of saltpeter to ten pounds of tallow is dissolved. When cold, and dregs scraped from it, boil again in which one pound of alum is melted. When cold, melt with one

pound of bleached wax and mould at your leisure. We took a premium once on candles thus prepared, and they could hardly be distinguished from star candles.

How to Improve Candles.—The *New York Tribune* says: If you use home-made candles, purify the tallow, and do not mix lard with it, though you may add a little alum; and never use your candles, any sooner than you would soap, until they are at least six months old. Pack them in bran, and set them away in a cool, dry place, and see how much they improve by age. It is well to mix beef and mutton tallow, but the proportion of the latter should be small, because it sometimes gives a disagreeable odor. All good tallow is white, firm, and brittle, and dipt candles can only be made of it in mild weather. Be careful to use nothing but fine, white, clean cotton yarn for wicking.

To Improve Candle Wicking.—Says the *Scientific American*, Steep the cotton wick in water in which has been dissolved a considerable quantity of nitrate of potassa—chlorate of potassa answers still better, but it is too expensive for common practice—by this means a purer flame and superior light are secured, a more perfect combustion is insured, and snuffing is rendered nearly as superfluous as in wax candles. The wicks must be thoroughly dried before the tallow is put to them.

Common cotton pack-thread or cord, of the best quality, four being twisted together, has been well recommended for candle wicking.

To Whiten Tallow.—The *Chemists and Druggist's Circular* recommends to melt the tallow and add a little alum and saltpetre, or a little nitric or sulphuric acid.

To make hard Candles from soft Tallow.—For thirty pounds tallow, take half a pound of alum dissolved in water, pour it into the tallow, let it come to a boil, skim and add two pounds beeswax. If the tallow is moderately hard you can add one-quarter lard. It is also asserted that the beeswax without the alum will have the same hardening effect.

2. Add about one pound of alum to eighteen pounds of tallow, more or less, as may be desired. For dipping, dissolve the alum in boiling water and add the tallow. For moulding, mix the alum with the tallow when cold, and dissolve together.

3. For twelve pounds of tallow, take half a gallon of water, to which add three tablespoonfuls of pulverized alum, and two of saltpetre, which heat and dissolve; then add your tallow and one pound of beeswax; boil all together, until the water evaporates, and skim well while

boiling. It should not be put in the molds hotter than you can bear your hand in. In very cold weather use less alum; in very warm weather, more.

4. Add one pound beeswax to every ten pounds tallow. Bayberry tallow is also good.

5. To sixty pounds tallow add one pound each of alum and saltpetre.

To make Lard Candles.—To every eight pounds of lard add one ounce of nitric acid. Having carefully weighed your lard, place it over a slow fire, or at least merely melt it; then add the acid, and mold the same as tallow, and you have a clear and beautiful candle. A small proportion of beeswax makes them harder and more resembling tallow.

Another Way.—Cheap and Excellent.—For twelve pounds of lard take one pound of saltpetre, and one pound of alum; mix them and pulverize them, dissolve the saltpetre and alum in a gill of boiling water; pour the compound into the lard before it is quite all melted; stir the whole until it boils, skim off what rises; let it simmer until the water is all boiled out, or till it ceases to throw off steam; pour off the lard as soon as it is done and clean the boiler while it is hot. If the candles are to be run you may commence immediately; if to be dipped, let the lard cool first to a cake and then treat as you would tallow.

In Lighting Candles always hold the match to the side of the wick, and not over the top.

ON FOOD—SELECTING AND COOKING MEAT, FISH, FOWL, ETC.

Food and its Influence.—Very few well-informed persons dispute the fact that the nature of the food taken by man has an influence upon his brain or mental power. National traits and characteristics are thus developed. Prof. Moleschott, of Zurich, says, It is a well known fact that change of food has transformed the wild cat into the domestic fireside-companion, from a carnivorous animal with short intestines, it has, by gradually becoming accustomed to other food, become transformed into another being, enabled by a long intestinal canal to digest vegetable food, which in its natural state it never touches. Food, therefore, makes the most rapacious and perfidious animal

in the world an inmate with man, agreeing with children, and rarely, except to a close observer, revealing its former guileful character. Are we, then, to wonder that tribes of men become ardent, phlegmatic, strong or feeble, courageous or cowardly, thoughtful or unintelligent, according to the different kinds of aliments they take? If food is transformed into blood, blood into nerve and muscle, bone and brain, must not the ardor of the heart, the strength of the muscles, the firmness of the nerve, the activity of the brain, be dependent upon the constituents of food?

In treating of the diet of the artist and literary man, the same writer states that a well-baked bread and lean meat, combined with young vegetables and such roots as are easy of digestion and contain a considerable proportion of sugar, form a wholesome diet for thinkers and poets; a large quantity of leguminous seeds, heavy bread, rich gravy, and greasy meat, create those irritable, morose, and almost always slender statesmen, who have permitted gloomy thoughts and gloomy imaginations to eclipse all happier views of life in them, or that they have come to consider rods and fetters as the most important promoters and protectors of civilization.

Rules for Marketing.—In marketing, the first rule is to purchase chiefly from known and respectable persons who have to support the character of their shops, and who are likely to go themselves to the best markets. The second rule to be observed is that of not purchasing inferior articles under the idea of being economical. A bargain is seldom a prize; and this is especially the case with regard to butcher's meat.

The best meat and the prime parts are unquestionably cheapest in the end, although the first cost may be the greatest. In coarse and inferior joints there is always too great a proportion of gristle, bone, and hard meat to render them truly economic; these may serve as the basis of soups, gravies, or stews; but for roasting or boiling they are wasteful.

The criteria of bad meat, by which must be understood meat that has been too long killed, or meat from animals killed in a state of disease, ought to be well known by those who market, no less than the value and economy of the different parts and joints.

HOW TO CHOOSE MEAT, FISH AND POULTRY.

Beef.—The grain of ox beef, when good, is loose, the meat red, and the fat inclining to yellow. Cow beef, on the contrary, has a closer

grain, a whiter fat, but meat scarcely as red as that of ox beef. Inferior beef, which is meat obtained from ill-fed animals, or from those which had become too old for food, may be known by a hard, skinny fat, a dark-red lean, and, in old animals, a line of a horny texture running through the meat of the ribs. When meat pressed by the finger rises up quickly, it may be considered as that of an animal which was in its prime; when the dent made by pressure returns slowly, or remains visible, the animal had probably passed its prime, and the meat, consequently, must be of inferior quality.

Veal should be delicately white, though it is often juicy and well-flavored when rather dark in color. Butchers, it is said, bleed calves purposely before killing them, with a view to make the flesh white; but this also makes it dry and flavorless. On examining the loin, if the fat enveloping the kidney be white and firm-looking, the meat will probably be prime and recently killed. Veal will not keep as long as an older meat, especially in hot or damp weather; when going, the fat becomes soft and moist, the meat flabby and spotted, and somewhat porous, like sponge. Large, overgrown veal is inferior to small, delicate, yet fat veal. The fillet of a cow calf is known by the udder attached to it, and by the softness of the skin; it is preferable to the veal of a bull calf.

Mutton.—The meat should be firm and close in grain, and red in color, the fat white and firm. Mutton is in its prime when the sheep is about five years old, though it is often killed much younger. If too young, the flesh feels tender when pinched; if too old, on being pinched it wrinkles up, and so remains. In young mutton, the fat readily separates; in old, it is held together by strings of skin.

In sheep diseased of the rot, the flesh is very pale-colored, the fat inclining to yellow, the meat appears loose from the bone, and, if squeezed, drops of water ooze out from the grains; after cooking the meat drops clean away from the bones.

Wether mutton is preferred to that of the ewe; it may be known by the lump of fat on the inside of the thigh.

Lamb.—This meat will not keep long after it is killed. The large vein in the neck is bluish in color when the fore quarter is fresh, green when becoming stale. In the hind quarter, if not recently killed, the fat of the kidney will have a slight smell, and the knuckle will have lost its firmness.

Pork.—When good, the rind is thin, smooth, and cool to the touch; when changing, from being too long killed, it becomes flaccid and

clammy. Enlarged glands, called kernels, in the fat, are marks of an ill-fed or diseased pig.

Bacon should have a thin rind, and the fat should be firm and tinged red by the curing; the flesh should be of a clear red, without intermixture of yellow, and it should firmly adhere to the bone. To judge of the state of a ham, plunge a knife into it to the bone; on drawing it back, if particles of meat adhere to it, or if the smell is disagreeable, the curing has not been effectual, and the ham is not good; it should in such a state, be immediately cooked. In buying a ham, a short thick one is to be preferred to one long and thin.

Venison.—When good, the fat is clear, bright, and of considerable thickness. To know when it is necessary to cook it, a knife must be plunged into the haunch; and from the smell it must be determined on dressing or keeping it.

In choosing *poultry*, the age of the bird is the chief point to be attended to.

An old *turkey* has rough and reddish legs; a young one smoother and black. Fresh killed, the eyes are full and clear, and the feet moist. When it has been kept too long, the parts about the vent begin to wear a greenish, discolored appearance.

Common domestic fowls, when young, have the legs and combs smooth; when old, they are rough, and on the breast long hairs are found instead of feathers. Fowls and chickens should be plump on the breast, fat on the back, and white-legged.

Geese.—The bills and feet are red when old, yellow when young. Fresh killed, the feet are pliable, stiff when too long kept. Geese are called green when they are only two or three months old.

Ducks.—Choose them with supple feet, and hard, plump breasts. Tame ducks have yellow feet, wild ones red.

Pigeons are very indifferent food when they are too long kept. Suppleness of the fat show them to be young; the state of the flesh is flaccid when they are getting bad from keeping. Tame pigeons are larger than the wild.

Hares and rabbits, when old, have the haunches thick, the ears dry and tough, and the claws blunt and rugged. A young hare has claws smooth and sharp, ears that easily tear, and a narrow cleft in the lip.

Partridges, when young, have yellow legs and dark colored bills. Old partridges are very indifferent eating.

Woodcocks and Snipes, when old, have the feet thick and hard; when these are soft and tender, they are both young and fresh killed

When their bills become moist, and their throats muddy, they have been too long killed.

Turbot, and all flat white fish, are rigid and firm when fresh; the under side should be of a rich cream color. When out of season, or too long kept, this becomes a bluish white, and the flesh soft and flaccid. A clear, bright eye in fish is also a mark of being fresh and good.

Cod is known to be fresh by the rigidity of the muscles (or flesh,) the redness of the gills, and the clearness of the eyes. Crimping much improves this fish.

Salmon.—The flavor and excellence of this fish depends upon its freshness and the shortness of time since it was caught; for no method can completely preserve the delicate flavor it has when just taken out of the water.

Mackerel must be perfectly fresh, or it is a very indifferent fish; it will neither bear carriage, nor being left many hours out of the water. The firmness of the flesh and the clearness of the eyes must be the criterion of fresh mackerel, as they are of all other fish.

Herrings can only be eaten when very fresh, and, like mackerel, will not remain good many hours after they are caught.

Fresh Water Fish.—The remarks as to firmness and clear, fresh eyes apply to these also.

Lobsters recently caught, have always some remains of muscular action in the claws, which may be excited by pressing the eyes with the finger; when this cannot be produced, the lobster must have been too long kept. When boiled, the tail preserves its elasticity if fresh, but loses it as soon as it becomes stale. The heaviest lobsters are the best; when light, they are watery and poor.

Oysters.—If fresh, the shell is firmly closed; when the shells of oysters are opened, they are dead, and unfit for food. The small shelled oysters are the finest in flavor. Larger kinds, called rock oysters, are generally considered only fit for stewing and sauces, though some persons prefer them.

COOKING.

The culinary science is progressive. Important discoveries are made in it every day, and combinations invented, that add, as it were, a new spice to life's enjoyments.

Cooking Meat.—Every good housewife feels it a duty that she owes to herself, her husband, and her children, as well as to society at large,

to prevent waste in every department of the household, whether provisions are cheap or dear, whether the husband is rich or poor; for true economy is one of the wisest, the best, and most ennobling of domestic virtues; while on the other hand, waste is a crime against humanity, an insult to the bounteous Hand which "giveth us all things richly to enjoy."

A hundred careful experiments were made in England in reference to roasting and boiling meats, in order to ascertain the respective losses :

Roasted chickens lost 15 per cent.; beef ribs and sirloins, 19 per cent.; geese, 19 per cent.; boiled mutton legs, 10 per cent.; boiled beef, 15 per cent.; boiled shoulder mutton, 28 per cent.; turkeys, 20 per cent.; mutton legs and shoulders, 24 per cent.; ducks, 27 per cent.

Boiling beef saves more than four per cent. over roasting. If a leg of mutton is boiled it loses ten per cent.; if roasted twenty-five per cent! The fatter meat is the greater the loss; it should be moderately fat to make it tender; but there is an unprofitable fatness. Eleven pounds of roast rib pieces lose two pounds, and the bones one pound.

Effects of Heat Upon Meat.—We extract the following from Chemistry of Common Life: A well cooked piece of meat should be full of its own juice or natural gravy. In roasting, therefore, it should be exposed to a quick fire, that the external face may be made to contract at once and the albumen to coagulate before the juice has had time to escape from within. And so in boiling. When a piece of beef or mutton is plunged into boiling water, the outer part contracts, the albumen, which is near the surface, coagulates, and the internal juice is prevented either from escaping into the water by which it is surrounded, or from being diluted or weakened by the admission of water among it. When cut up, therefore, the meat yields much gravy, and is rich in flavor. Hence a beefsteak or a mutton chop is done quickly and over a quick fire, that the natural juices may be retained. On the other hand, if the meat be exposed to a slow fire, its pores remain open, the juice continues to flow from within, as it has dried from the surface, and the flesh pines and becomes dry, hard, and unsavory. Or if it be put into cold or tepid water, which is afterwards brought to a boil, much of the albumen is extracted before it coagulates, the natural juices for the most part flow out, and the meat is served in a nearly tasteless state. Hence, to prepare good boiled meat, it should be put at once into water already brought to a boil. But to make beef tea, mutton broth, and other meat soup, the flesh should be put

into cold water, and this afterwards very slowly warmed, and finally boiled. The advantage derived from simmering, a term not unfrequent in cook books, depends very much upon slow boiling, as above explained.

Boiling Meats.—All cooking should be done in vessels full large. Meats, whether salted or fresh, should be put, when they are to be boiled, into saucepans of cold water, that the meat may gradually grow warm as the water increases in heat. The quantity of water in which meat is boiled should be sufficient to cover it, but no more; and as it wastes away in boiling, the cook should frequently renew the quantity by adding a cup of warm water to it. If she add cold water she checks the boiling of the water considerably, and the time allowed for boiling is thus wasted. Water in which meat is boiling throws up a scum, which must be skimmed off as fast as it rises. If this be not done, the neglect will be apparent in the black streaks which will settle on the meat in serving.

As soon as the water boils, the saucepan or kettle containing it should be drawn off the fire, but placed near enough to keep it simmering. Meat is more thoroughly cooked by gentle than by fast boiling, which hardens it.

The allowance of time for boiling meat, and for roasting also, is, in the summer, at the rate of a quarter of an hour to one pound of meat; in the winter, twenty minutes to the pound.

Salt and dried meats, such as briskets of beef, hams and tongues, require very slow boiling; and hence much more time must be allowed for them than for fresh meats. Old meats, such as beef and mutton, require a less allowance of time both for roasting and boiling, than do the young meats, such as veal and lamb.

Stewing Meats.—The water into which meat has been put to stew should be allowed to boil, and should be kept boiling until the scum ceases to rise, and has been carefully removed. The saucepan must then be covered closely and placed near enough to the fire to keep the contents simmering, or to one regular, moderate temperature, until the meat is become as tender as the nature of the dish of which it is to be the basis requires.

Roasting Meat.—Slow roasting is as desirable as slow boiling; and that the process should commence gradually, it is desirable to put the joint down to roast very soon after the fire has been supplied with the quantity of fuel which the roast in question will require to be consumed before it is sufficiently done. By putting down the meat before the whole mass of fuel is ignited, the heat, increasing by degrees, com-

municates itself to the meat in the same gradual manner, and in due time reaches the interior of the joint.

The fire should always be proportioned to the size of the joint to be roasted; that which is but just sufficient to roast a noble sirloin will parch up a lighter joint.

Before the meat is put down, the lower bars of the fire should be raked and cleared of every smoky coal in front.

The distance at which meat should be put from the fire is from nine to twelve or thirteen inches. At the farthest point it should be put at first, and brought closer by degrees.

The fat, as well as those parts of a joint in which there is no great thickness of meat, should be protected from the full force of the fire requisite for the other parts, by having paper skewered over them, or by covering them with a coarse paste of flour and water, fastened on with paper and string. This latter mode is very commonly employed by professed cooks, and taken off only in time to brown and froth the meat. When a paper cover is used, it should be fastened on with twine, rather than skewers, which, allowing it to start from the meat toward the fire, it becomes scorched, and distastes and colors the surface of the joint.

The time allowed for roasting varies according to circumstances. Old meats, beef and mutton, require less roasting than young.

Fat meat requires more roasting than lean. The usual allowance of time is a quarter of an hour to a pound of meat; but Dr. Kitchener recommends twenty minutes to be given, and it is desirable to add five minutes to this allowance when cold weather affects meat, or when meat is too recently killed.

Other details respecting roasting must here be noticed. Basting, browning, frothing, and dredging are each of importance to the success of roasting, whether of meat, poultry or game.

Basting is the act of moistening meat, while before an open fire, with certain ingredients which assist the roast, prevent its juices from being dried up, the meat from becoming insipid, and its surface from being scorched. Meat should be basted about every ten minutes at first, and towards the close of the roasting still more frequently. Beef and mutton, while roasting, yield generally sufficient dripping, with which they may be basted. Veal and poultry, being of a dry nature, require an addition of butter, dripping or suet, in order to have a sufficient basting for them.

To some meats flavored bastings are used. Mutton and lamb are sometimes basted with claret and sweet herbs and butter. A hare is

basted usually with salt and water, or with milk for the first half hour; afterward this is poured away, and butter is substituted. For basting pig, Dr. Kitchener recommends cream and melted butter. For veal and other white meats, the yolks of six eggs, grated biscuits, and the juice of an orange. For all common roasts, butter, clarified suet, or dripping, are the most usual basting.

Browning meat should commence when the meat is half done, by stirring the fire and making it brisker. When a good brown is not obtained, the appearance of the joint will be improved by the addition of a glaze.

Frothing is done a few minutes only before the meat is served. As soon as the steam of the roast draws towards the fire, showing that the meat is sufficiently roasted, the cook should lightly, but uniformly, dredge with flour the whole surface of the joint, and immediately baste it with butter or dripping. The briskness of the fire should be increased by stirring, and in three minutes the meat should be taken down and served. Poultry, game, veal and lamb should be frothed with butter; for beef or mutton, dripping answers as well. The object of frothing is to plump up the skin of meat or poultry, by which the appearance of the joint is much improved.

The dredgings used in frothing are sometimes composed of other ingredients besides flour, as a means of giving some particular flavor to the meat. Of dredgings, there are, first, flour and grated bread; second, sweet herbs, dried, powdered and mixed with flour; third, sugar, finely powdered, and mixed with powdered cinnamon and grated bread; fourth, lemon peel, dried, pounded, and mixed with flour; fifth, fennel seed, corianders, cinnamon and sugar, finely beaten, and mixed with grated bread.

Broiling.—In roasting joints of which the meat is thick, it is desirable that the heat should be only gradually applied. But in broiling the case is different—the quicker the process the better. Drying up the juices is to be avoided, as it hardens also the fibers of the meat; hence, the degree of intensity of the fire must be attended to, and adapted to the particular kinds of meats about to be broiled. Beef and mutton, for instance, require a brisker fire than veal or pork, fish or poultry. Uniform thickness of the steak or chop is desirable, that the whole may be equally done. Beef steaks should scarcely exceed in thickness half an inch. Mutton may be, without disadvantage, somewhat thicker.

Salt should not be sprinkled on chops or steaks either before or while broiling, as it draws out the gravy. Pepper may be used, if approved.

When steaks or chops are broiled or fried, they should be turned with steak tongs. If a fork be used it opens courses for the juices of the meat to escape from it.

In broiling, a fine bed of coals, a clean gridiron, and patience to turn over the slices until nicely done, are indispensable.

Baking.—Thick paper should be tied over the fat to prevent its wasting. Fowls should be properly skewered and stuffed. Some water put in the bottom of the pan for beef, pork, mutton, or fowls; for fish, a little wine and water; for hares, milk and water. The meat should be very frequently basted in the beginning, and the heat should be stronger in the beginning than afterwards. It prevents the meat shrinking and shrivelling. Nearly all the meats brought on the table now as roast are really baked.

Frying.—Frying, like broiling, is a species of quick roasting done in an iron pan: in regard to the uniformity of the thickness of the steaks, and as to the degree of heat to be given to the different meats, nearly the same directions will serve as in broiling. In frying, the pan requires to be made hot by boiling in it either dripping, oil, or butter; the substance to be dressed is put into this boiling liquid, the depth of which should not be sufficient to immerse it, but only to cover completely the bottom of the pan, and to keep moist the surface of the meat. The latter should be frequently turned from one side to the other, and when nearly done, it may be more deeply browned by pressing it firmly for one or two seconds against the bottom of the pan. Fish is best fried in oil or lard. Meat is fried in beef dripping or suet.

Beef A-la-mode.—Take out the bone of a fine round of beef, and prepare a stuffing of bread crumbs, sweet herbs and chopped yolk of eggs. Tie the piece of meat into an oval round form with strong twine. Fill all the crevices with the stuffing. Lard it with cold threads of fat pork. Put some water and wine in the bottom of a pan, and baste and bake slowly. If served hot, reduce the gravy to a nice brown, and serve with it. If used cold, ornament it.

Meat Pies.—The meat or fowl for these is stewed until tender; then divested of the fat. The gravy is highly seasoned. With a plain short crust. Bake in a Dutch oven. These are called pot-pies; pieces of the dough are usually put in between the pieces of meat in pot-pies.

The same preparation of meat or fowl baked in pans in rich puff paste, usually appear in grand dinners, named by the meat they contain, or in small pans as patties or pastries. Cold mutton or venison

sliced, stewed slightly with a rich gravy, seasoned with wine and spices, is a very nice side-dish for a dinner.

Marbled Beef.—Take a long thin piece of side or fresh beef. Remove the skin of the inside, and strip as a beef steak preparing for the griddle. Sprinkle slightly with salt, and freely with cinnamon, mace, alspice, and brown sugar, mixed ; let it lie thus for twenty-four hours or longer in cold weather. Prepare light bread crumbs, savory herbs and chopped yolks of hard boiled eggs, as for stuffing a fowl. Lay the meat flat on the table and spread thickly with this preparation, which may be moistened with wine. Roll the meat around a block of two inches diameter, tie neatly and roast or bake well, basting with wine and water. When done the stick must be drawn out, and the crevice filled with stiff jelly. If served hot, send its own gravy nicely browned to the table with it. But this is usually prepared for lunch or party suppers, and served cold, in which case do not draw out the wooden bolt or cut the string until entirely cold ; then coat the outside as well to fill the central aperture with nice jelly, and otherwise ornament as occasion requires. Cut entirely through in half inch slices, and it presents a pretty marbled appearance, and is very nice to the palate.

Venison and mutton are both dressed by the same directions.

Stuffed Beef Steak.—A correspondent of the *Agriculturist* gives the following : Take a large round steak free from bone ; make a dressing the same as for turkey, and spread it on the meat. Roll it up tightly, put it in a cloth and boil for one hour in just enough water to cover it.

Improved Mode of Cooking Salt Pork.—Cut as many slices as may be needed, if for breakfast, the night previous, and soak till morning in a quart or two of milk and water, one-third milk—skimmed milk, if not too near souring, is best ; rinse till the water is clear, and then fry. It is nearly or quite as nice as fresh pork—both the fat and the lean parts.

Milk Gravy.—The principle food of numerous families in the United States, consists of fried pork, pork fat, bread, and potatoes. Fried pork, in particular, mounts the table. Three-fourths of those who use the fat fried out of the pork for gravy, could easily furnish milk and cream, and form a dish much more luxurious, without any additional expense.

Add cream to your milk, if you have it, and make your gravy ; firstly, take out your pork from the fry-pan, as soon as well done through, and all the fat except about two or three tablepoonfuls. Wet

up a large spoonful of flour with cold water. Stir this into the fat while hot, and in a few seconds add your milk, two cupfuls or more, and stir the whole together; let it boil about five minutes with the pork in it, or not. This makes a healthy and palatable gravy. Clear pork grease is bad for the system when used in daily food. It tends to scrofula.

Pork Cake.—One pound salt fat pork, and one pound raisins, chopped together fine. Two cups molasses. One cup boiling water. One teaspoonful soda. Five and a half cups flour, and plenty of spice.

The following is highly recommended in the *Country Gentleman*: Thirteen ounces fat salt pork chopped very fine—pour on one pint boiling water; let it stand till cold; add one teacup molasses, three teacups of sugar, one tablespoonful cloves, one of cinnamon, one of saleratus, nine cups flour, one pound raisins.

How to Cook a Ham.—An old and experienced cook says: "Never put a ham into a kettle of cold water, and be equally careful never to place one in boiling water. First let the water become luke-warm; then put the ham in. Let it simmer or boil lightly for four or five hours—five is better than four; then take it out and shave the rind off. Rub granulated sugar into the whole surface of the ham, so long as it can be made to receive it. Place the ham in a baking dish, with a bottle of prime cider. Baste occasionally with the juice; and let it bake an hour in a gentle heat. A slice from a nicely cured ham thus cooked, is enough to animate the ribs of death."

Cleaning Pigs' Feet.—Put the feet in cold water to soak over night. With a moderately sharp knife, scrape all parts thoroughly until the skin is clean and white. Hold the lower ends in hot water for a minute or two, to part the dew-claws and hoofs, which can then be twisted off with the hand. Singe in a clear flame and they are ready to boil for souce or head-cheese.

Mutton as an Article of Food.—The *American Agriculturist* says: "We mean to repeat a thousand times, or at least till what we say have some effect upon our countrymen, that a pound of lean, tender, juicy mutton can be produced for half the cost of the same quantity of pork; that it is infinitely healthier food, especially in the summer season, and those who eat it become more muscular; and can do more work with greater ease to themselves than those who eat fat pork. We know nothing more delicious than smoked mutton hams of the Southdown breeds of sheep. Venison itself is not superior.

Mutton to Eat Like Venison.—Take a loin of mutton and bone it; lay it on the fat side in a stew pan, with an onion stuck over with

cloves until the meat is slightly brown. Then pour over it one pint of broth, a gill of port wine, half a gill of catchup, and let all stew together gently for three hours. Serve with a rich brown sauce.

The hind quarters of mutton can be roasted the same as beef; if you wish to stuff it, take out the kidney, and stuff under the flank, and skewer down. Hind quarters of lamb can be roasted in the same way.

Hashed Mutton.—Cut the meat into thin slices, pepper, salt, and flour it according to your palate. Break the bone to suit your saucepan, and add water according to the size of your bone—say half a pint. Take two onions sliced, fry them a nice dark brown in a little lard or dripping; mix them with the bone, and a crust of bread roasted a dark brown, but not black. Let them stew about half an hour. Strain the gravy, add the meat to it, let it coddle slightly, taste, and add a dust more flour to it if not thick enough; pepper and salt to fancy. A little lemon peel will improve the flavor, or a little lemon pickle, or any other pickle. A little catchup, a little of Soyer's sauce, and a glass of port wine, separately or united, form a nice seasoning.

To Roast a Leg of Veal.—Cut out the bone with a sharp carving knife. Fill up the hole with stuffing, and skewer the lappet over to keep in the stuffing.

Hash.—Hash is cold meat or fowls minced, and stewed with rich seasoning of butter or cream and pepper.

Salads.—Meat salads are prepared of turkeys, chickens or cold veal. There are also other salads prepared of lobsters, oysters, &c. The last are little used, except on set occasions, save where those things are plenty and cheap.

For chicken salad, &c., boil done—divest the fowls of skins, bones, and everything else but the breast if you are fastidious, but generally all the lean of a fowl is used. Mince the meat fine; mix with it finely chopped celery and India pickle, until the taste of both is entirely perceptible. Just before using, incorporate with it the dressing following: For two chickens, the finely chopped yolks of eight hard boiled eggs, one-fourth pint of pure salad oil or melted butter, two heaping teaspoons of mustard, one of pepper and salt, and one teacup of strong celery vinegar. Mix this well, and stir a little of this into a small portion of prepared meat. If any ingredient is lacking, add that one cautiously; when you find you have it right, mix thoroughly a short time before using.

Sandwiches.—Slice some best loaf bread thin and evenly. Butter well and spread over some mustard sauce, or simply sprinkle with

mustard, or spread a coat of nice jelly, then a layer of grated ham or tongue, or cheese, or any minced relish. Over this lay another slice of bread, prepared as the first. Lay them neatly on each other until the plate is filled.

Sandwiches for evening parties: Chop fine some cold dressed ham, say about a quarter of a pound; put it in a basin with a tablespoonful of chopped pickles, and a teaspoonful of mustard, a little pepper or Cayenne; put about six ounces of butter in a basin, and with a spoon stir quickly till it forms a kind of cream; add the ham and seasoning, mix all well, have the sandwich bread cut in thin slices; have already cut, thinly intermixed with fat, either cold roast beef, veal, lamb, mutton, poultry, fowls, pheasant, grouse, partridge, &c., either of which lay evenly, and not too thick, on your bread; season with a little salt and pepper; cover over with another piece of bread; when your sandwich is ready, cut them in any shape you like, but rather small and tastily, and serve. You may keep them in a cold place, if not wanted, as they will keep good under cover for twelve hours.

Delicate Breakfast Rashers from Cold Boiled Bacon.—Cut the bacon into slices about a quarter of an inch thick; grate over them some crust of bread, and powder them well with it on both sides; lay the rashers on a cheese toaster, and brown them on both sides.

Excellent to accompany poached or fried eggs, and for a garnish around veal cutlets, or sweet breads, or hashed calf's head, or dishes of green peas or beans.

Hotch Potch.—Make a stock with two pounds of the neck of mutton and four quarts of water. When it boils, have ready, cut in dice, a good quantity of young turnips, carrots, and the tops of cauliflowers, with one or two lettuces cut very small. Put these vegetables, with a pint of full-grown peas, pepper and salt, into the boiling stock. Let them boil for an hour and a half, then add three pints of green peas, and four or six lamb or small mutton chops. Take out the neck, and let it boil for one hour longer, when it will be ready for serving.

Winter Hotch Potch.—Boil for two hours (or more, if not perfectly tender,) one pound of peas; pulp them through a seive. Put on, in a separate saucepan, one gallon of water, three pounds of mutton chops, some salt and pepper, one and one-half pound of carrots, the same of turnips, cut small. Boil till the vegetables become tender, which may be in about two hours. Add the strained peas to it, and let it boil a quarter of an hour, when it is ready to serve.

Hotch Potch, or Save-All.—Cut hog's liver in small pieces. To each liver put one pint of sliced onions. Boil them till tender in the liquid

where head cheese has been boiled. Then add the scraps of leaf fat (the more the better.) Boil all together for ten minutes. Then skim out the contents. Run it through the sausage cutter. Put it in the liquid again; stir and season it well with pepper and salt; dip it out, and put it in pans or jars. When cold, pour a little melted lard over it, and it will keep good until April, unless eaten before. To prepare it for the table, cut it in slices, put in a fryer with a little water, and let it fry a few minutes, and you have a cheap dish, not to be surpassed. So says one who has tried it.

To Cook Chickens.—The following is highly recommended: Cut the chicken up, put it in a pan, and cover it with water, let it stew as usual, and when done make a thickening of cream and flour, adding a piece of butter and pepper and salt; have made and baked a pair of shortcakes, made as for pie-crust, but rolled thin and cut in small pieces. This is much better than chicken pie, and more simple to make. The crusts should be laid on a dish, and the chicken gravy put over it while both are hot.

Chicken Panada.—Boil a chicken till about three parts ready in a quart of water; take off the skin, cut the white meat off when cold, and put into a marble mortar; pound it to a paste with a little of the water it was boiled in, season with salt, a grate of nutmeg, and the east bit of lemon peel. Boil gently for a few minutes to the consistency you like; it should be such as you can drink, though tolerably thick. This conveys great nourishment in a small compass.

White Fricassed Fowl.—Cut up a fowl and put in a stew pan with sufficient water to cover it, add a few grains of whole pepper and a sliced onion, let it stew until tender. Take it up, and add to the liquor in which it was stewed a teacupful of cream, two tablespoonfuls of flour, butter size of a walnut, and a pinch of salt, well worked together. Boil a minute and pour over the fowl.

Chicken Pie.—Take a pair of good young chickens, cut them in small pieces, adding a proper quantity of pepper and salt, and small strips of salt pork, and put the whole into a saucepan and cover with water. Boil for half an hour; add flour and butter to thicken the gravy. Prepare a large dish for baking it, served with paste; put the whole into the dish and cover again with a good rich paste, and bake the pie half an hour. It is best while fresh from the fire.

Fried Chicken.—Cut up and dip into a little flour, or first in **yelk** of eggs, and after in grated cracker or bread crumbs. Fry a nice light brown in butter or lard. Serve with butter or cream gravy.

A Superior Curry.—Half roast a nice plump chicken, baste it well

with good butter, and fry two large onions a light brown color in the dripping. Then cut the chicken in pieces and put them into a stew pan with the fried onions and one clove of garlic, two dessertspoonfuls of curry powder, one ounce of butter, four or five blanched almonds, well bruised in a mortar, and water enough to cover the whole. Let it simmer till the pieces are quite tender, and serve up with a squeeze of lemon and salt to taste.

Chicken and Turkey Patties.—Mince some cold chicken or turkey; put to it some of the gravy, or, if you have none, line your pie dish with a paste; put in your minced meat; work some flour and butter together, and lay bits all over the meats; then nearly fill the dish with water; season with pepper and salt, and, if liked, a little ground mace; cover with a nice paste, and cook till the crust is done.

Roast Turkey.—Have the turkey cleaned and washed nicely; put it in the pan in which it is to roast; season it with salt and pepper; fill the body with dressing, as for roast goose, the crop the same as for roast ducks; place in the pan back upward; dredge a little flour over, and one large tablespoonful in the pan, with water sufficient to make gravy, which stir well together before setting in the oven. Baste frequently, and when a nice brown, turn it over, that it may be of an equal color all around. Should the gravy boil away, and not leave sufficient in the pan, a teacupful of hot water may be added, with a little more flour, if necessary; stir it well, and let it simmer two or three minutes, then serve hot.

Boiled Turkey.—Clean the turkey, wash it well, season the inside with pepper and salt; dredge a little flour over, and pin it in a clean towel; put it into a kettle of hot water that has been salted; let it boil slowly; when done send it to table hot. This is eaten with oyster sauce, or drawn butter, as preferred.

To Roast a Goose.—Take a young goose, pick, singe, and clean well. Make the stuffing with two ounces of onions, (about four common-sized,) and one ounce of green sage, chopped very fine. Then add a large coffeecup of stale bread crumbs, and the same of mashed potatoes; a little pepper and salt, a bit of butter as big as a walnut, the yolk of an egg or two; mix these well together and stuff the goose. Do not fill it entirely; the stuffing requires room to swell. Spit it; tie the spit at both ends to prevent its swinging round, and to keep the stuffing from coming out. The fire must be brisk. Baste with salt and water at first, then with its own dripping. It will take two hours or more to roast it thoroughly.

A green goose, that is, one under four months old, is seasoned

with pepper and salt, instead of sage and onions. It will roast in an hour.

Sauce for Roasted Goose.—Put into a saucepan a tablespoonful of made mustard, half a teaspoonful of Cayenne pepper, a glass of port wine and a gill of gravy; mix, and warm, and pour it through a slit in the apron into the body of the goose just before serving.

To Make a Stuffing for All Kinds of Meat and Poultry.—Take a five cent loaf of stale baker's wheat bread. Rub it up fine; save out in a bowl one-quarter part; put the rest in a pan, and jam it with the potato masher; put in about two ounces of butter, or fat salt pork, cut fine, two fresh eggs, a tablespoonful of sweet herbs, thyme, sweet marjoram, and summer savory, equal parts, rubbed fine; teaspoonful of salt, or to the taste, tablespoonful of flour, and thicken with the dry bread till quite thick.

To Cook Eggs.—It is stated in a newspaper that this is a sure rule for cooking eggs: "Put them in cold water; when the water boils take out your eggs, and they will be found just right, unless you require them boiled hard. If so, let them cook for half an hour, and they will digest much easier, and be found more palatable than the waxy-like eggs generally brought on for hard boiled."

To make an Omelet.—Take three teaspoonfuls of milk for each egg, and a pinch of salt to each one also. Beat the eggs lightly for three or four minutes, and pour them into a hot pan in which a piece of butter the size of a walnut has been melted a moment before. The mass will begin to bubble and rise in flakes immediately, and the bottom must be lifted incessantly with a clean knife so that the softer parts run in. An omelet should be cooked about three or four minutes, and made in this way will melt in the mouth.

For a cheap omelet, if there are no social objections to your eating onions, try the following: Beat up the yolks of three eggs, add half of a good-sized onion, chopped very fine, and a tablespoonful of chopped parsley. The shredding of the onion to a sufficient degree of fineness is very important, as the short time required to fry the omelet would be sufficient to cook the onion. Have ready some butter or nice dripping, which should be boiling hot when the beaten egg is stirred in. It should be of a light brown on the under side. It may be browned on the top by holding the pan of the hot shovel over it.

An omelet is sometimes made in this manner: Four eggs and a cup of sweet milk are beat together, then cooked over a moderate fire, in a skillet, in which a piece of butter the size of a walnut has first been

melted. Parboiled ham cut into small bits and mixed with the omelet when put in the skillet is liked by some.

French Omelet.—Three eggs, (the yolks and whites beaten separately,) three tablespoonfuls milk, one teaspoonful flour, and a pinch of salt. Stir the flour and milk with the *yolks* of the eggs. Beat the *whites* of the eggs to a stiff froth, and mix with the other ingredients.

How to Test Eggs.—There is no difficulty whatever in testing eggs; they are mostly examined by a candle. Another way to tell good eggs is to put them in a pail of water, and if they are good they will lay on their sides, always; if bad, they will stand on their smaller end, the large end always uppermost, unless they have been shaken considerably, when they will stand either end up. Therefore, a bad egg can be told by the way it rests in the water—always end up never on its side. Any egg that lies flat is good to eat and can be depended upon. Eggs are good which are diaphanous, or show a faint reddish color, when held in a dark place, toward a candle or other light, when held in the circle made by the thumb and fore finger; they are bad in proportion as they seem black. This is an infallible test.

How to eat an Egg.—Another newspaper article says: "By the usual mode of introducing the salt it will not mix or incorporate with the egg; the result is, you either get a quantity of salt without egg, or egg without salt. Put a drop or two of water, tea, coffee or other liquid you may have on the table at the time, then add the salt, and stir. The result is far more agreeable, the drop of liquid is not tasted."

Fish.—This article, always esteemed a luxury in or out of season, off the coasts and great rivers, is cooked in many ways, but we give but three or four leading ones. The fish should be fresh, well cleaned, out and inside, not soaked in water, and if to be kept at all, must be in ice entirely. The gills are red, eyes not sunken, and the whole body elastic, of a fresh fish.

Baked Fish.—Cut two or three slices of best bread, butter it, and powder with mace and pepper. Dip the bread quickly in some good wine, lay it in the fish and tie it securely. Put some wine and water into the bottom of the pan, and baste the fish with it freely until it bakes quite done. While baking, mix a quarter of a pound of butter with a heaping teaspoonful of flour, to a cream. Stir this into the gravy after you have taken the fish up, and use it for sauce. You may stuff a fish as you would a chicken, and use drawn butter flavored with a pleasant catchup or egg sauce.

Boiled Fish.—Lay whatever fish you wish to boil on a strainer in the kettle. Let your kettle come to a boil slowly. When you think

it done, see with a knife whether the spine is loose in the flesh. If done, lift up and drain perfectly. Lay the fish in a clean white napkin, fold it over, and send to the table immediately—or pour the sauce hot over the fish, and cover it.

Broiled Fish.—Cut into nice slices, and over a clear fire of coals put it on a gridiron until well done, turning it over carefully. Keep a dish with melted butter in it, seasoned with pepper and catchup, and lay the pieces in it; when done turn them over and cover closely.

Fried Fish.—Lay small fish or pieces of large fish into a pan with sweet hot lard or butter. Fry brown on both sides. There should be enough grease to cover the fish well, or it will stick and burn. This is a gross dish, and requires some good sauce to molify its strong taste, especially if fried in lard. Some persons dip small fish in corn meal before frying.

How to Cook Shad.—Shad are excellent when baked, either on a board, which is the best, or by the following mode: Stuff them with a seasoning made of bread crumbs, butter, salt, pepper, and (if agreeable) parsley and spices. Bake from three quarters of an hour to an hour. Shad *broiled* is also excellent, but it is spoiled by *frying*, as it loses nearly all its fine flavor. This being a moist fish, it should never be boiled. Those who never eat a baked or broiled shad, know nothing of that excellence which we claim for this fish *over all others*.

To broil a shad, scrape and scale it; split it down the back, wash it clean, wipe it dry, lay the flesh side on to the gridiron, broil ten or fifteen minutes; then turn it skin down, broil it ten minutes; dish it, and rub it over with a little sweet butter; serve hot.

Oysters.—Oysters are among the most healthful, and nutritious of all the articles furnished for the table. When fresh, they are probably most nourishing when eaten raw; but they should not be “bolted down,” as is the custom of some who love this bivalve. They should be thoroughly masticated, or in other words, made to feel the teeth.

Cooking Oysters.—Oysters have become so common, even in our far western homes, that it falls to the lot of most housewives to cook them. the printed directions on the cans often mislead. It is very rare that you can use much of the liquor of pickled oysters; it is too salt. Almost uniformly they should be washed, and if very salt, soaked. After that they may be used as fresh canned oysters, and neither kind may be expected the earnest compliment of a guest from oyster regions, of tasting “quite like those just from the shell.”

Stewed Oysters.—Put sufficient water with the liquor from fresh oysters to cover them in a dish. Drain the liquor into a kettle, and when

it comes to a fair boil, put in the oysters and cook as much as you like them. Tastes vary extremely on that point. Stir in a cup of sweet cream or fresh milk, with a lump of butter as large as a walnut for a small can of oysters. Season with pepper, salt and a blade of mace, if you like. Some persons use white wine instead of milk.

A French Method.—This receipt is handed down as the invention of the celebrated Marshal St. Evremont, whose taste was educated in the Court of the Grande Monarque: Take what quantity of oysters you will and wash them in their water; lay them in a stewpan and strain their water upon them; add a good lump of butter, which (when melted) should be half as much as the water, season with salt; boil smartly with the lid on, and when it is half cooked put in some crusts of light French bread and finish the boiling.

Fried Oysters.—Beat up a couple or three eggs in a cup, and rasp bread crumbs on a plate with sweet herbs powdered, and lemon peel. Dry the oysters, as much as possible, souse them in the eggs, and cover them with crumbs. Fry them in plenty of good butter.

Another Way.—Take large oysters, wash them clean out of the liquor, wipe them dry, dip them in eggs and crumbs, and fry them in hot fat. Or dip them in a nice batter and fry them in butter.

Baked Oysters.—Three eggs, half a pint of cream, half pint of oysters and a little salt—bake.

Scalloped Oysters.—Take crackers or rusked bread; pound fine; butter a pan, and put in alternate layers of crumbs and oysters, having a layer of crumbs at the top; season them with salt and pepper; and add a little butter and oyster juice sufficient to moisten the whole; bake till brown.

Oyster Patties.—Prepare a rich paste as for a chicken pie; line a bake dish or little patty-pans; set in the stove and bake done, but not brown. Have ready some stewed oysters, with a very rich gravy of butter or cream. Fill the dish or lay a large oyster in each patty, and cover with gravy. You may bake little lids of paste and lay over the patties, but they are usually open. The dish must be covered and baked as a chicken pie if you bake in a pie-pan.

A dish bottom covered with bread crumbs, then a layer of oysters with a bit of butter on them, and a sprinkle of pepper and salt; then a layer of crumbs and again of oysters, is a very nice dish when baked well. Layer of crumbs on top.

Plain Oyster Patties.—Make little round loaves, or take small French rasps; make a hole in the top of each, and scrape out a portion of the crumb. Put some oysters into a stewpan with their own

liquor, and add to them the crumbs of bread rubbed or grated fine, and a lump of butter; season with black pepper, and a sprinkle of Cayenne; stew for five or six minutes, and then put in a spoonful of good cream. Fill the rasps or loaves, and cover with the bits of crust previously cut off; set them in an oven for a few minutes to crisp.

Minced veal, lamb, poultry, game, &c., may be done in the same way as for paste patties.

To Cook Clams.—Take one dozen clams, open, saving juice and meat; chop the meat fine. Take six eggs, mixing the whites and the yolks; then mix the clams, juice and meat, with the eggs, and cook over a *slow* fire, stirring constantly, till the mixture has the consistency of stiff cream. Take off and serve.

To bake them, take four eggs, half a pint sweet milk or cream, twelve clams, and bake fifteen to twenty minutes.

To Cook Lobsters.—For stewed lobster, take out all the meat and soft part from the body, and cut it into small bits; put them into a saucepan with two cups of white stock, a little mace, cayenne and salt; dredge in some flour, some bits of butter, and stew it about ten or fifteen minutes; stir it frequently, and when done, add a little vinegar or white wine.

Lobster Cutlets.—Boil two good lobsters, and take out all the meat, mince it very fine, or pound in a mortar; put it in a stew pan with a small piece of butter, salt and white pepper, a little lemon juice and sugar. Set it on the fire, and stir until it boils up. Take from the fire, put an egg with it, stir it well, and add another egg if the quantity of lobster requires it, and then set to cool. When cold make into the shape of lamb cutlets; when all are made, have an egg beat up, brush the cutlets, rolling them in bread crumbs; as you do them, take the small red toes of the lobster for a point to each cutlet; press them up to where the bone of the cutlet is, and fry with sweet butter of a light brown. For those who like it, a gravy may be made, brown with cream and flavored with anchovy.

COOKING VEGETABLES.

THIS is the simplest branch of culinary art—one with which much pains should be taken, that our people, especially laborers, might be

tempted to change the unhealthy and expensive habit they have of subsisting so much on meats. As a rule, vegetables should be cooked while fresh. They should be perfect of their kind. Iron pots or tin saucepans should be used in cooking vegetables chiefly. Copper, brass or bell metal discolor and render poisonous articles having acid in them.

An earthen or stone crock with a lid stews fruit nicely.

Delicate preparations that would be easily burned, should be put in a china or tin kettle, and placed in a pot of boiling water. Such preparations, however, usually belong to what is erroneously termed dessert—that word meaning, according to English precedent, fruit, nuts, etc.

Vegetables should be picked and washed clean, and laid in cold water until just ready for cooking. Potatoes, parsnips, and roots generally, should be thrown into cold water as soon as pared, or they turn black. A little salt should be thrown into the water where vegetables are cooked, and green ones should be put in boiling water at the start.

Only use as much water as will cover them properly; they are washy if cooked in too much. There are some exceptions to this rule. When turnip greens grow old, to change the water when cooking, renders them milder. Also dry beans and peas should have the water changed after parboiling them.

Drain all vegetables perfectly. Those to be dressed with drawn butter, should be saturated simply with it. It is not desirable to have them served up with it as you would meat with gravy.

Use of Salt in Cooking Vegetables.—If one portion of vegetables be boiled in pure distilled or rain water, and another to which a little salt has been added, a decided difference is perceptible in the tenderness of the two. Vegetables boiled in pure water are vastly inferior. This inferiority may go so far in the case of onions, that they are almost entirely destitute of either taste or color, though when cooked in salted water, in addition to the pleasant taste, they have a peculiar sweetness and a strong aroma. They also contain more soluble matter than when cooked in pure water. Water which contains 1-420 of its weight of salt is far better for cooking vegetables than pure water because salt hinders the solution and evaporation of the soluble and flavoring principles of the vegetables.

Potatoes.—The proper cooking of good food is an essential element of good health in all civilized countries. The general use of the potato shows that it is palatable and healthful. It has the same amount of nutriment as the egg, thirteen per cent.; it has twice the nutri-

ment of coffee, half as much as beef. It requires two hours and a half for digestion, raw cabbage two hours, roast beef an hour longer, roast pork an hour longer still. It is claimed that the outer quarter of an inch of the potato contains more nourishment than the entire remainder. Hence peeling is a waste. They should be cooked, then the very thin skin is easily removed, and the whole nourishment remains. Late in the spring, as the potato prepares for sprouting, the outer portion becomes rank, and it is better to peel before cooking. If kept in a dark place, sprouting is much retarded, and further if the sprouts are rubbed off with the hands. The lighter a potato is, the more mealy and palatable it will be after cooking; hence the good ones float, while others sink in strong salt water. Boiled potatoes are not digested so easily or so soon as if baked or roasted.

How to Choose Potatoes.—Observe as a general rule, says Soyer, that the smaller the eye the better the potato, as when they are too full in the eye they are either of an inferior quality or are running to seed. To ascertain if they are sound, nip a piece from the thickest end with your finger nail; if good, the inside will either be of a good white, yellow or reddish hue, according to the sort and quality; if, on the contrary, they are spotted, they are bad, or getting so; but though this part may be slightly touched, by cutting a little off the outside, they may prove fit for boiling.

COOKING POTATOES.

Boiling.—The usual way is to put them into cold water, either thinly peeled, or with the skin on, and well washed, gradually heating the water and boiling slowly until done, when the water is poured from them, some salt thrown in, a napkin put over them, and then set by the side of the fire to keep hot.

Dr. Hall advises to put them in cold water with the skin on, and gradually heat the water; when near boiling, add more cold water; if thus checked, the skins will not crack until the potato is thoroughly done; pour off the water and let the skins become dry, before peeling.

The Irish nick out a piece of the skin before putting them in the pot. The potatoes of each cooking should be nearly of the same size, that all may be equally done. They should not be covered with more than an inch of water, that they may be just covered at the finish; they will become waxy and watery if allowed to remain in the water a moment after they are well done. After they are dried they can

be kept hot and mealy some time if covered with a napkin. Moderate sized potatoes should be done enough in a quarter of an hour.

A good authority recommends to put potatoes of equal size into water while boiling hot, when done, cover the pot with a coarse cloth, and return it to the fire for five minutes, when they are ready for the table. Even watery potatoes are thus made mealy.

Daniel Webster, in a letter to his son, promising to dine with him, gives these directions: "Let these potatoes be peeled early and thrown into a basin of cold water till time to cook them. Let them be boiled in a good deal of water. When done, pour off all the water, shake up the potatoes a little, hang on the pot again, and then bring them to the table. I remember when we heard Hannah Curtis shaking her pot, we knew that dinner was coming."

Potatoes half boiled may be sliced and broiled, or they may be fried until they acquire a nice brown. Potatoes three parts done may be put into the dripping pan to receive the dripping from the meat; in this way they are excellent, and, at the same time, economy is consulted.

To Improve Soggy Potatoes.—After they are sufficiently boiled, and the skins taken off, place them in a dry cloth, and express the moisture by a slight wringing. They will then appear mealy, and taste well.

Potatoes, when boiled, if either waxy or to be eaten with cold meat, should be peeled and put whole on the gridiron until nicely browned.

A contributor to the *Country Gentleman* says: To boil perfectly, take those of the same size, cover them with water, with a little salt, and a piece of lime as big as a hickory nut. When you can stick a fork in them easily, pour off the water, and put them in your oven stove and dry them.

Baked Potatoes.—The best way to cook a potato is to bake or roast it in an oven; when done, crack the skins open and allow them to dry out for a few minutes before placing them on the table.

Dr. Hall says: Clean well, nick out a small piece, and roast. A little butter over the skin crisps them.

Fried potatoes may be cut from raw, half an inch thick; fry quickly in hot fat, let grease drip off, dry, salt and use.

Cold potatoes fried: Put a bit of cream dripping into a frying-pan; when it is melted, slice in your potatoes with a little pepper and salt; put them on the fire; keep stirring them; when they are quite hot they are done.

Stewed potatoes, peeled, cut into pieces, and stewed with fat pork, are very eatable, improved with a little cream. Potatoes should be always boiled a little before putting into stews, as the first water is a little poisonous.

Potatoes Mashed.—When your potatoes are thoroughly boiled, drain them quite dry, pick out every speck, &c., and, while hot, rub them through a colander into a clean stew pan. To a pound of potatoes put about half an ounce of butter and a tablespoonful of milk; do not make them too moist; mix them well together.

Potatoes Mashed with Onions.—Prepare some boiled onions by putting them through a sieve, and mix them with potatoes. In proportioning the onions to the potatoes, you will be guided by your wish for more or less of their flavor.

Potato Ribbons.—Cut the potatoes into slices rather less than an inch thick, free them from the skins, and then pare round and round in very thin and long ribbons. Place them in a pan of cold water, and a short time before they are wanted on table drain them from the water. Fry them in hot lard or good dripping, until they are quite crisp and browned; drain and dry them on a soft cloth, pile them on a hot dish, and season them with salt and cayenne in fine powder.

Potato Flour and Jelly.—Rasp the potatoes into a vessel of cold water, and change it frequently, until the raspings fall to the bottom, like a paste, then dry in the air, pound in a mortar, and pass it through a hair sieve. This is nearly as nutritious and lighter than flour; hence is better for pastry and puddings for invalids. If kept dry, it will remain good for years, while it is easily converted into a most nutritious jelly by pouring absolutely boiling water on it. When changed into jelly, flavor to taste and use it.

Concentrated Potatoes.—A bushel of potatoes averages sixty pounds. When all the water is absorbed five pounds of nutritive material are left, which, when ground, looks like Indian meal.

Cooking the Sweet Potato.—Sweet potatoes are cooked in all the modes usual for Irish. They are best baked, if large enough. Boiled and sliced, with butter poured on them, and some mixed sugar and cinnamon sifted over them, and then browned, are very nice for dinner or pic-nics.

Sweet Potato Pudding.—Wash the potatoes, peel and grate them, (using a large, coarse grater,) then take of the grated potato, eggs, butter, either sugar or molasses, (the latter is best,) and milk sufficient for a batter. Bake in a deep dish without crust; stir two or three

times whilst cooking, and then bake brown. Flavor as desired. This and the following are according to the methods practiced in the South.

Sweet Potato Custard.—Boil the potatos, skin and mash them—then with the mashed potatoes, butter, eggs, sugar and milk, make a batter and bake with one crust in a shallow dish. Flavor as desired.

Sweet Potato Pie.—Peel the potatoes, slice—take sugar and water sufficient to make a syrup to cover the potatoes, add a little butter and some spices, and cook until the slices are softened—then make in-to pies with two crusts. I have eaten of this in the south when I thought it was the best pie I ever tasted.

Fried Sweet Potatoes.—Peel them, slice and sprinkle with a little fine salt, then fry till moderately brown, in butter or lard—if in butter, no salt is needed.

To Cook Cabbage.—Cabbage and the whole tribe of greens belonging to it, are usually cooked with pork or bacon, but it is much more delicate dressed with butter. Whatever way the vegetable is used, it should be picked and washed with great care, boiled until stalk and all is entirely soft, and drained to a nicety. If taken up in a collander, and fresh water poured over it until cold, and returned to the pot to finish boiling, it is less strong in odor and taste. The inner leaves of a cabbage are sometimes cut out and their place filled with stuffing, like a fowl; only minced tongue, ham, and chopped yolks of eggs are mixed freely with the bread crumbs and herbs.

Fried Cabbage.—Take cabbage not quite done by boiling, shear them up tolerably fine, and fry with butter or lard or dripping from very nice pickled pork.

Slaw.—Cut up the cabbage very fine. For cold slaw pour over vinegar flavored with mustard, salt and pepper to taste, and cut over it when dished up some hard boiled eggs. For hot slaw, put the cabbage into a pan after it is sliced up. For two quarts of cut cabbage, beat up six eggs very light, a teacup of melted butter with two tablespoons of rich cream mixed in it. Add to this two teaspoons of mustard, one of salt and one of brown sugar. Set the pan of cabbage in a pot of boiling water, and stir the dressing into it until the egg is cooked and the cabbage scalding hot. As nice as chicken salad if well made. Lettuce is nice thus dressed, but cold. Some minced celery improves its flavor.

Another method for hot slaw, is to put the cabbage cut very fine into a stew pan with a piece of butter, and salt and pepper to taste; pour in just hot water enough to prevent its sticking to the pan; cov-

er it closely, and let it stew; stir it frequently, and when it is quite tender, add a little vinegar, and serve it hot.

To Cook Sea Kale.—Soak the stalks in water for thirty minutes, and tie in small bundles. Boil them very tender, over a brisk fire, with a little salt in the pot; drain off the water, and lay them on a slice of toast, which has been moistened in the liquor. Dress with melted butter, pepper and salt.

To Cook Brussels Sprouts.—Immerse them in clear water for an hour, and cleanse them from dirt and insects. Then boil them quickly for about twenty minutes, using plenty of water. When soft, take up and drain well, and serve up at table, or put into a stew-pan with cream, or a little butter thickened with flour, and seasoned to taste, stirring them thoroughly. They may be served up also with tomato sauce, which greatly heightens the flavor.

To Cook Kohl Rabi.—Select middle sized Kohl Rabi turnips. Cut off the roots and large leaves, and pare. Then cut in thin slices, and with all its small leaves put in a pot with a little water and some salt. Boil until soft, then add a small piece of fat and a little pepper. While this is boiling, prepare a little fat mixed with flour and roasted until yellow, which add to the turnip, and also a little sugar and nutmeg. Boil a little while longer and it is ready for the table.

Another way is to put sliced turnips and young leaves, together with veal, in a pot; let it stew until soft, and season with nutmeg and pepper to taste.

To Cook Green Corn.—Boiled in clear water with a little salt, is the most common method of preparing this most popular vegetable. It should be just done when sent in, or it will be dark and shriveled. It is best to cut it down in a pan sitting in boiling water, stir in butter and send hot to the table.

Another way is to trim off the husks and immerse in boiling water, with a little salt. Boil gently half an hour; then take out the cobs, rub over some butter, pepper, and salt, and brown before a quick fire.

Another plan, and one which many persons prefer, is to boil as above; afterwards, cut off the corn neatly, return it to a pan containing a sufficient quantity of milk to cover, throw in a tablespoonful of butter, the same of sugar and salt, to flavor, simmer slowly for fifteen minutes, and serve up hot.

A correspondent of the *Agriculturist* contributes the following: Take two dozen ears of green corn, well clean from the silk, slightly cut off the edge of the kernels with a sharp knife, and *scrape* the remain-

der off. Place in a pot with two teacupfuls of water. When cooked so there is danger of burning, thin with sweet milk. When well done, season with salt, and add butter to your taste.

Fried Corn.—Cut down and fry in butter or lard.

Corn Pudding.—Split twelve large ears down each row of grains; scrape it off the cob; mix with 't a pint of rich milk, two heaping tablespoons of butter, six well beaten eggs; season with salt and pepper. Bake done and brown.

Pombolia.—Cut down six ears of corn as for corn pudding; put it with the cobs into what water will cover them; also a tea-cup of rice. Boil until well done; take out the cobs and stir in a spoonful or two of butter and cream, with what salt and pepper you relish. Healthy and nice for breakfast.

Succotash of two kinds—green and dried corn. For the first, boil the beans first, as they need more cooking, then shave the green corn off the cob, and boil it with the beans. With dry corn, the corn must be soaked until it is thoroughly swelled out tender, and then treated as the other.

A rule given is to boil the beans until soft, and add the corn ten or fifteen minutes before bringing to the table.

A good succotash is made as follows: Cut up equal quantities of green beans and corn; after they are boiled and drained, mix them together and stew a few minutes with cream and butter. Hominy and dry Lima beans make tolerable winter succotash.

Preparing Dried Sweet Corn for Table.—Pick and wash it very clean, put it into a tin basin upon the back of the stove, well covered with cold water and the basin covered, two hours before it is wanted. Do not let it boil; it hardens it; season it with butter and salt. You would hardly know it from fresh corn.

Corn Oysters.—Eighteen ears grated corn, three eggs, pepper and salt to taste, three tablespoonfuls of flour. Fry in hot pork fat or lard. Serve hot.

Hominy.—Is Indian corn with the husk beaten or ground off. Soak it for some hours; put it on a fire and boil very slowly until it mashes easily. The pot must be replenished, as it falls, with boiling water. Samp, cooked like hominy, requires less butter.

There are three sizes of hominy. Large hominy requires to be boiled for four or five hours over a gentle fire. It should be washed clean, and put in the stew pan with just enough water to cover it. It is eaten as a vegetable. To cook the smaller hominy, wash it in two waters; then to one teacupful of hominy add a quart of water and a

teaspoonful of salt, and place the dish that contains it in a kettle of boiling water, to prevent it from getting burnt, or else over a very gentle fire. Let it boil for an hour stirring it well with a spoon. It is generally eaten for breakfast. It is excellent sliced and fried after it has become cold.

To Cook Rice.—Rice is easily injured by poor cooking, and almost spoiled by a little over boiling. Rice should be carefully looked over, and thoroughly washed in two or three waters. The kernel will then have a pearly luster. It should be put into boiling water, in which a little salt has been thrown, and allowed to boil fifteen or seventeen minutes. The water should then be drained off, and the kettle set back from the violent heat of the fire. When it has steamed in this way for about fifteen minutes it will be perfectly soft, of snowy whiteness, and each kernel will retain its individuality, and not be lost in one solid mass of paste. A pint of rice may be boiled in three quarts of water.

The following method is preferred by some to the richest rice pudding: Slowly simmer the rice in milk three or four hours, or till the grains burst and absorb the milk; add a little sugar, put the whole into a wide dish, and bake till slightly brown. Eat it with milk or butter.

Cracked Wheat.—Take plump, clean winter wheat, if not winter the best quality of spring wheat, grind coarsely in a hand mill, stir into five quarts of boiling water—*soft* water—one quart of the ground grain—boil moderately for four or five hours, stirring occasionally. When desired to be eaten cold, mold in dishes and serve up with sugar and cream. Lest it should burn, it should be cooked in a tin vessel set into a kettle filled with water.

A Cheap and Wholesome Dish.—A writer in an agricultural paper says: "My family breakfasted this morning, July 20, mainly on boiled wheat. Boiled wheat and milk. Boiled wheat and maple sugar. Not wheat flour, nor wheaten groats, nor cracked wheat, but whole grains of wheat, shelled from the best heads, the larger the better, and soaked in cold water two or three hours, and then boiled in the same water one or two hours or until quite soft, and the water is all absorbed. It should all be cooked while other culinary operations are going on, as it needs to boil or simmer on a slow fire for a good while, and care must be taken at the last that it does not burn. To prevent this, it may be finished off by placing the kettle in a pan of water.

The Cheapest Food—Beans and How to Cook them.—The cheapest and most nutritious vegetable used for food is *beans*. Professor Liebig

says that pork and beans form a compound of substances peculiarly adapted to furnish all that is necessary to support life. A quart of beans costs in Cambridge, eight cents; half a pound of pork, six cents. This, as every housekeeper knows, will feed a small family for a day with good strengthening food. Four quarts of beans and two quarts of corned beef, boiled to rags in fifty quarts of water, will furnish a good meal to forty men at a cost of fifty cents, one cent and a quarter a man.

There is an account of a widow having had six children to support, and was entirely without means to procure them food, save eight hens which laid daily. She did not feel willing to make known her necessities, or to solicit any assistance. She resolved to try the experiment of sustaining herself and children on these eight eggs. To eat them would do but little beyond maintaining life. To exchange them, therefore, for other food was the plan adopted. Accordingly, she daily exchanged six eggs for beans, and two of them for a small piece of coarse meat, both of which were cooked together for soup, which was, under the circumstances, quite palatable, and in amount sufficient to satisfy hunger. In this way they were all sustained till more ample means were at control; an instance of management rarely or never excelled.

To Cook Green Beans.—Green beans, boiled until perfectly done, and dressed as asparagus, are nice. But they are more commonly cooked with pork or middling bacon. Bacon should always be soaked nearly free from salt for cooking purposes. Dried beans or peas are also cooked with pork.

Baked Beans.—Few people know the luxury of baked beans, simply because few cooks properly prepare them. Beans, generally, are not cooked half long enough. This is our method: Two quarts of middling sized white beans, two pounds of salt pork, and one spoonful of molasses. Pick the beans over carefully, wash and add a gallon of boiling hot soft water: let them soak in it over night; in the morning put them in fresh water and boil gently till the skin is very tender and about to break, adding a teaspoonful of saleratus. Take them up dry, and put them in your dish, stir in the molasses, gash the pork, and put it down in the dish, so as to have the beans cover all but the upper surface; turn in boiling water till the top is just covered; bake with a steady fire four or five hours. Watch them, and add more water from time to time as it dries away. Those who prefer may omit the molasses.

Cooking Peas.—From the *Agriculturist*: Gather and shell the peas

at night, and put them in cold water, in which you have previously thrown a handful of salt. In the morning pour off the water and put them in boiling water. Let them stew for thirty-five minutes, and then put in half a cupful of sweet cream, with a piece of butter the size of an egg, and a tablespoonful of flour. Stew for five minutes longer. Send to the table hot, and you have a dish fit for an epicure.

Cooking Carrots.—Carrots are mostly used in soups and for ornamenting dishes of meat. Sometimes boiled and sliced, with melted butter poured over. The southerners cook them more eatably by seasoning them, after they are boiled and sliced thin, with cream, sugar and powdered mace. They are stewed in this for a few minutes, and so quite disguised.

Cooking Parsnips.—Parsnips may be boiled and sliced, with butter over them, or stewed with fat pork. The nicer way is to boil them, mash them through a colander, and mix in a quart of them, butter, salt and pepper; or yet nicer, two spoons of brown sugar, and the yolks of four eggs, beaten well. Bake brown. Better the second than the first day, when cooked thus and warmed over. Skirret and Scorzenera are cooked similarly.

Beets.—Boiled beets are usually served as cucumbers, but they may be sliced up when boiled or baked and eaten hot with melted butter over them.

Artichokes, Asparagus, Spinach, Cauliflowers, &c.—All of these, and greens of delicate flavor, also onions and their tribe, are all boiled in clear water, drained and dressed with drawn butter, salt and pepper.

Tomatoes.—Persons who have not learned to like tomatoes are losing one of the greatest luxuries of life. Like all acquired tastes, the flavor becomes exceedingly attractive, and this esculent adds materially to the pleasures of the table. But it is from its effects that the tomato is most craved by those who are accustomed to its use. It seems to have the property to cause all other food to be assimilated by the system, and gives comfort after dinner, even to dispeptics.

The most common way of cooking tomatoes is to stew them. They are scalded with boiling water, which loosens the skin so that they can be readily peeled. The peel is then taken off; the fruit is sliced into a saucepan, with broken cracker or bread, (or without,) and a little salt, and stewed for twenty to thirty minutes. A better plan is to place the mixture in an earthen dish, and set the dish into a hot oven.

Many persons think that the best way of preparing tomatoes is to

pare and slice them cold, or slice without paring, and sprinkle them with a little fine loaf sugar, to be eaten raw. Some add salt and vinegar. Others think this no improvement. Some eat with sugar and vinegar alone, others with salt, pepper and vinegar, and no sugar. For eating cold the tomatoes should be pared without being scalded, as the scalding injures the flavor.

Tomatoes Broiled.—Split, lay the skin side on the griddle, sprinkle with pepper and salt, and lay a bit of butter on each. This answers full as well baked in an oven.

Scolloped.—Put a layer of tomatoes, seasoned as for broiling, then a layer of bread crumbs with bits of butter; fill a dish with these layers and bake brown.

Tomato Toast.—Pare, slice and cook green tomatoes until very tender. Add sweet cream, sweet milk will do, but it will need more butter, sufficient to make plenty of gravy. Season with pepper, salt and as much butter as you can afford. Have your bread nicely toasted and placed in a deep dish, and pour the contents of your spider over it. An excellent way to use up dry slices of bread.

To Cook Squashes.—Squashes, cushaws, &c., are boiled soft, strained free from liquid, reduced to a pulp, and, after mixing in cream, butter, pepper, salt, and sometimes a little sugar, stewed very dry.

Baked Squash.—To bake squash well it needs a long continuation of gentle heat, enough to cook it done, and also dry it considerably. Unlike the potato, it is not best cooked as quickly as possible, and eaten as soon as done, but is far better baked slow, the heat evaporating much of its juices, and leaving all of its sugary sweets, just right to tempt the palate. Cut thin, bake and dry until thoroughly done.

How to cook Rhubarb, or Pie Plant.—Get the Linnæus rhubarb. It is larger, more tender and better flavored than any other, requires less sugar by one-fourth, and has no skin to be taken off. Do not attempt to peel it, but cut in pieces as long as the thickness of the stalk and put them with your sugar in an earthen dish without water; cover it to retain the flavor, and place it in an oven and cook till quite tender without stirring or breaking the pieces. If too much cooked, it assumes a disgusting stringy appearance, and loses all fruity character. The rosy color of the stalks will give your dish an attractive appearance, and the dyspeptic will find in it a powerful aid to digestion.

If the rhubarb stalk has a green spotted surface, it is a kind that may be cut up without peeling; if the red sort, the peel must be torn off before it is cut up.

To Cook Dried Rhubarb.—Put in a kettle with water in excess, boil down to a proper consistency, sweeten to taste, and it is ready for use, in pies or with cream, and gives more the flavor of the same article cooked fresh from the garden, than does a dried preparation of anything I know.

Uses of the Rhubarb.—The leaf stalks for tarts, pies and sauce, in the same manner as apples; also stewed alone, or with rice; made into jellies and other preserves; and when fully grown, the juice expressed, is made into an excellent wine.

To Cook Celery.—Celery stewed in plain water until tender, exactly like sea kale, is an admirable auxiliary to a mutton chop, &c., and for those who cannot masticate it in a raw state.

Celery is sometimes dipped in butter and fried.

This delicious vegetable is not generally appreciated as a cooking vegetable. Wash the stems clean in salt and water, and drain them into boiling water; after boiling twenty minutes, take up the drain; place some toasted bread in the bottom of a dish, lay the celery upon it, and season with butter, pepper and salt.

Salsify.—Boil soft, drain and boil up with a little butter, vinegar and cream. This way they resemble stewed oysters. If mashed, with butter, pepper and salt, with a little flour to bind, and made into little cakes and fried in butter, they are very nice.

How to Cook Asparagus.—Take a bundle and lightly scrape the white part, beginning from the head down, and throw them when done into cold water, then tie them up in bundles of twenty-five each, if an ordinary size, if very large, half that number, keeping the heads together, and putting those of the same length into the same bundle; throw the bundles into boiling water, add a little salt, and boil briskly fifteen minutes, or till tender; have a layer of dry toast on your plate, lay the bundles on with the heads at the center, and carefully cut the string; let the longest bundle form the lowest layer, thus dressing it in the form of a pyramid. Serve very hot, with cream or butter sauce poured over it.

Another Way.—Cut the stalks when six to twelve inches high, and wash if needed. Some break the stems into short pieces, and others tie them whole in little bundles, a few stalks in each. They are then boiled in water, slightly salted, for twenty-five or thirty minutes, and dipped out and drained. Lay toast in the bottom of a dish, and spread the asparagus over it. Pour over the whole a full supply of drawn butter, or what is better, gravy made of milk and flour—cream instead of milk makes it still richer—and salt enough to season it. The

good quality of the dish will much depend upon the skill exercised in making the gravy. If eaten in large quantities, asparagus is diuretic, though producing no serious injury. In moderate quantity it is not only palatable and moderately nutritious, but believed to be healthful.

Another.—Cut it into bits half an inch long; boil in water enough to cover it; salt, put in a bit of soda the size of a pea to a quart, and season with butter and cream. New tin is the best to cook it in.

For Asparagus Toast.—Cook as above, with the addition of an egg or two well beaten; prepare a butter toast, and turn it on.

Baked Eggs with Asparagus.—Cut twenty heads of asparagus into small pieces, boil them fifteen minutes, put them into a stewpan with half an ounce of butter, set them on the fire for three minutes, season with a little pepper, salt, and sugar; when done put them in the dish you wish to serve them on, break six eggs carefully over, sprinkle salt and pepper over and put the dish in the oven till the eggs are set.

To Cook Cauliflower.—This vegetable suffers worse in the hands of the cook, if possible, than in those of the gardener.

Put a good firm head in a sauce pan of boiling soft water; cover closely and not cook one minute after a fork will pass readily through the stem; drain and pour over melted butter.

To Cook Egg Plant.—Take the egg off the vine when soft. Cut it in thin slices. Take three hen's eggs, beat them well; put on your pan with a spoonful of butter or lard; then put in your eggs, and salt and pepper to taste; then pour about half your beaten egg over them; let them cook a little—turn them, and add the remainder of your beaten egg. Let them cook until soft and they are ready for the table. Send them to the table hot. Or,

Slice and sprinkle with salt for an hour before cooking. Then dip in beaten egg and bread crumbs, or in nice batter, and fry brown.

Another Way.—Parboil it, cut into slices and season very highly with pepper and salt; fry or boil it (as you do mushrooms,) in a pan with butter. If nicely done, it is very similar in flavor to the mushroom.

To Cook Apple Pie Melon.—When ripe, which can be known by the melon turning yellow, or the seed black, remove the seed, pare and slice the flesh in small pieces, and then stew in water just enough to have it like stewed apples; when done, add sugar, spices, and a little acid. Tartaric acid or lemon juice, or good vinegar may be used, the latter, however, does not make as good a pie. A table-spoonful of lemon juice to four pounds of melons is a good proportion. The quantity of sugar must be in proportion to the acid.

A correspondent of the *Country Gentleman* says: Cut and pare as you would pumpkins. Stew until thoroughly done, and if there is too much water in them, turn them into something to drain; and when dry enough use them just as you would stewed apples, adding sharp vinegar or tartaric acid to give the tart. A complete counterfeit apple pie can be made, scarcely to be distinguished from the genuine.

A correspondent of the *American Agriculturist* recommends half a lemon or half a teaspoonful of tartaric acid added to each pie. For "apple sauce" to three pounds of the melon prepared for cooking, one pound of sugar, a teaspoonful of tartaric acid and a little extract of lemon are added. Another use for the fruit is to fry it in the same manner as the egg plant. It is also used for preserves and sweet pickles.

To Make Lettuce Salad.—Select fine heads and shred up finely upon a clean board with a sharp knife, Use a large bowl for preparing it. Put in salt and mustard; then add the hard boiled eggs, chipped or mashed fine; then cream (we use cream entirely instead of oil, and find it superior, only it requires more cream than oil,) a little at first, stirring it well; then more cream until the required quantity is put in; lastly, add vinegar to suit the taste. Some prefer the cream and others oil.

Cabbage Salad.—Chop enough cabbage fine to fill a vegetable dish. Heat a coffee cup of strong vinegar, with a piece of butter in it the size of a small egg. Pepper and salt. When hot, beat an egg very light and stir in; then pour it all on to the chopped cabbage.

How to Select Mushrooms.—Edible fungi grow usually in elevated and airy places in waste ground; whilst the dangerous species are found in woods, and in dark damp places. The edible species have a compact, brittle flesh; while those with a soft and watery flesh should always be rejected. Wholesome fungi have an agreeable odor, although this character is also found in some injurious species. A powerful and disagreeable odor is the certain indication of noxious qualities. We ought at once to reject fungi which secrete a milky juice, and those which present an acrid, astringent, bitter acid or salt taste. We should suspect fungi which have a bright tint, red, green, or blue, of which the gills are colored brown or blue. The flesh of the edible species is in general white; nevertheless, a beautiful red fungus, the *orange agaric*, is considered as the finest and most delicate species. Wholesome fungi do not change color by contact with the air after being cut; those of which the flesh then acquires a brown, green, or

blue tint, are poisonous. We ought to regard as dangerous those which insects will not touch.

It is proper to abstain from fungi, whatever may be their apparent qualities, when they exhibit any signs of change; when even they have been collected more than twenty-four hours—the poisonous properties being capable of development when the fungus dries up.

There are many mushrooms which are poisonous, and we would advise those who are not very conversant with their characters to abstain from gathering them.

Cooking Mushrooms.—Mushrooms are stewed or boiled, and are employed in flavoring many dishes. They are also pickled and dried, and when reduced to powder, and kept in this state in close bottles, they are very useful in the season when they do not grow. Catsup, or catchup, is made from mushrooms by mixing salt and spices with their juice.

MAKING SOUPS, BROTHS AND GRUELS.

Soups.—Soups while deemed indispensable to a fashionable dinner, are yet one of the most economical forms of food. Not the most digestible, however, as used to be deemed when prepared at random for weakly and sick people. It is excellent food for laborers in cold, but too stimulating in warm weather.

First rate soup, like all first rate articles, requires the best of ingredients. But the neck, shanks, any good scraps of fresh meat, or old fowls, will make soup as well as the most sightly pieces or youngest birds. Let your meat—beef, mutton, or fowls, or game, be cut into small pieces, and the bones cracked up well. Put the pieces into a pot and cover them with as much water as will stew them into rags. This process should be a slow one, and they should be stewed very low; then pour in some boiling water, and keep the soup boiling to within a few minutes of serving. Skim it entirely free from grease. Take out whatever you wish to set away for the morrow before you put in the vegetables, as they, in warm weather, give it a tendency to sour. Now cut up vegetables (previously cooked by themselves) in it. Slice potatoes, okra, turnips, carrots—any vegetables you like, or rice or barley. If there is any vegetable, for instance onions, cabbage or tomatoes, which you wish to give distinctive character to your soup,

use that vegetable entirely, or in connection with potatoes and okra, which give consistence without any very discernible taste.

If your soup lacks richness, a few spoonfuls of drawn butter will help—if consistence, some gelatine may be dissolved in it. A bouquet of sweet herbs is indispensable.

A rich soup is sometimes flavored with wine or catchup. We think it better to offer those articles to each person, as also the castor at the table.

White Soup.—Take two large fat old chickens; chop up the pieces and mash the bones. Put in a few slices of boiled ham, if not too strong. Stew slowly until in rags. Then pour on three quarts of boiling water and boil it down to a half gallon. Chop up the chicken's heart, the yolks of six hard boiled eggs, and stir with a teacup half full of, grated bread crumbs, into a cup of rich, sweet cream; strain the soup, return it to the kettle with a bouquet of herbs, boil five minutes, stir in the cream, etc., and take it off quickly.

Soup of any fowl or game may be made in the same way. Instead of the thickening prepared as above, you may boil it in some rice, or use vermicilli or maccaroni, previously simmered until soft.

Turkey Soup.—The remains of a young turkey make good soup. Put all the bones and little bits left of a dinner, into about three quarts of water. If you have turkey gravy, or the remnants of chickens, add them also, and boil them two hours or more. Skim out the meat and bones, and set the water aside in a cool place till the next day. Then take all the fat from the top; take the bones and pieces of skin out from the meat and return it to the liquor. If some of the dressing has been left, put that in also, and boil all together a few minutes. If more seasoning is needed, add it to suit the taste.

Gumbo.—Take a large fowl, cut in pieces, beat up and fry very brown, and make with it a highly seasoned and rich gravy. Cut into it a half gallon of tender green okra, as many ripe tomatoes, and pour on three pints of boiling water; boil until the vegetables are of the softest consistency and chicken in rags. Stir in a heaping tablespoon of young sassafras leaves, dried and reduced to a powder. Strain into your tureen hot. When well made, this will almost rope like candy. Pepper, onions, and sweet herbs, are used profusely, in this soup, with salt to savor it.

Soup from Mince Pie Meat.—The *Agriculturist* says: "Continue boiling if necessary the liquor in which beef has been boiled until it is strengthened of the superfluous moisture, add vegetables and seasoning, and you have a good dish for the following meal."

Clear Gravy Soup.—Cut some onions in slices and fry them in a pan in butter, until they are a light brown; put them into an earthen vessel or stew pan. Wash an ox-cheek very well, and let it be in water an hour; then take it out and put it in the pan with the onions, some celery, turnips, and carrots, and some herbs tied up in muslin; fill the pans with water, and let the contents stew gently for several hours, never removing the cover, but to skim often and well, as on this depends the clearness of the soup; then strain through a soup-sieve. A good pea soup can be made of the bones and meat afterwards, with the addition of a hock of ham, or scraps of dry ham, or ham bones. Three pounds of lean beef, cut in slices, will do instead of the ox-cheek.

Economic Soup.—Get two pounds of leg or shin of beef, cut it into pieces, and boil gently in six quarts of water for about an hour and a half. Then add a pint of split peas, a pound of mealy potatoes, and a head of celery cut small. Slice a few onions and fry them in a little fat, dredging them slightly with flour, till they are nicely brown; then stir them into your soup, and add salt and pepper to your taste. Let the whole boil until the celery, &c., is thoroughly tender, and the peas well broken in. Then serve up either with or without toasted bread.

Liebig's Soup.—Liebig, in his *Researches on Food*, says: "When one pound of lean beef, free from fat, in the finely chopped state in which it is used for beef sausage or mince meat, is uniformly mixed with its own weight of cold water, slowly heated to boiling, and the liquid, after boiling briskly for a minute or two, is strained through a towel from the coagulated albumen and the fibrine, now become hard and horny, we obtain an equal weight of the most aromatic soup, of such strength as cannot be obtained, even from boiling for hours, from a piece of flesh. When mixed with salt, and the other usual additions by which soup is usually seasoned, and tinged somewhat darker by means of roasted onions or burnt sugar, it forms the very best soup which can in any way be prepared from one pound of flesh."

Oyster Soup.—Mix one pint of water with whatever liquor you can drain from two quart cans of fine fresh oysters. When this liquor comes to a full boil, put the oysters in and boil until nearly done; pour in then a quart of fresh milk. Season with salt, pepper, and a blade of mace, if you like it. If you like this a little thick, powder a half dozen crackers fine, and sift them into it.

Egg Soup.—Make a rich custard; instead of sweetening, season

with salt, pepper and savory herbs. Melt a lump of butter—a piece large as a walnut—to every quart.

Vegetable Soups.—These may be made of veal, beef, mutton, fowls, or game, the single vegetable you wish being used in it, or you may boil any delicate vegetables, such as corn, peas, asparagus, etc., in water until they are nearly dissolved. Always use with them a little rice. When strained put in a spoonful of cream, mixed with the beaten yolk of one or two eggs, and a piece of butter rolled in flour.

Soup made of equal quantities of rice and corn is very palatable.

Potatoes and dry beans each make good family soup in winter. You may use slices of pork or old ham, not too strong, instead of fresh meat.

Cheap Vegetable Soup.—Peel and slice a quart bowl of potatoes with two or three onions, and boil tender. Stir three tablespoonfuls of flour into cold water, and add to the potatoes, with butter the size of an egg. Pour in water sufficient for four quarts of soup and season with pepper and salt to taste. Add a pint of dry bread or biscuit, boil a few moments and serve.

A Delicious Soup.—Peel and slice six large onions, six potatoes, six carrots, and four turnips; fry them in a half pound of butter, and pour on them four quarts of boiling water. Toast a crust of bread as brown and hard as possible, but do not burn it, and put it in, with some celery, sweet herbs, white pepper and salt. Stew it all gently for four hours, and then strain it through a coarse cloth. Have ready thinly sliced carrot, and stew them tender in the soup. If approved of, a spoonful of tomato catchup may be added.

Another Vegetable Soup.—Take two good sized turnips, one carrot, one parsnip, one sweet potato, two Irish potatoes, one onion, a little parsley, chopped fine, and three tablespoonfuls of rice or pearl barley. Slice the vegetables very thin; put them into two quarts boiling water; let them cook three hours; then add the rice, and cook one hour longer.

Vegetable Oyster Soup.—After cleaning, cut into slices a quarter of an inch thick; boil in plenty of water until tender, with a few bits of codfish; salt and season with pepper, butter and cream, and you will have a soup almost equal to shell oysters.

Turtle Bean Soup.—Take one quart of beans, lay in soak over night in cold water. In the morning pour off the water and add fresh, say three pints or two quarts. Let them cook four and a half hours, adding water as it boils away; then strain them through a sieve, slightly pressing them, as when making pea soup; for flavoring, take pepper.

salt and a little whole clove; use meat if you prefer, either a bone cooked or uncooked. When ready for the table, place thin slices of lemon on the bottom of the tureen, and pour the soup upon it; add a glass of wine; toasted bread to be eaten with it; and by some it is considered an improvement to add a couple of hard boiled eggs cut in slices.

Green Bean Soup.—Take one quart of garden or kidney beans, one ounce of spinach, and one ounce of parsley. Boil the beans; skin and bruise them in a bowl till quite smooth; put them in a pan with two quarts of vegetable broth: dredge in a little flour; stir it on the fire till it boils, and put it in the spinach and parsley, previously boiled and rubbed through a sieve.

Green Peas Soup.—Take three pints of peas, three common sized turnips, one carrot, and the shells of the peas. Boil one quart of the largest of the peas with the shells or pods till quite soft; rub through a fine colander; return the pulp into the pan, add the turnips, a carrot sliced, and a quart of boiling water; when the vegetables are perfectly soft, add the young or smaller peas, previously boiled.

Split Peas Soup.—Take three pints of peas, three common sized turnips, one carrot, and the shells of the peas. Boil one quart of the largest of the peas with the shells or pods till quite soft; rub through a fine colander; return the pulp into the pan, add the turnips, a carrot, sliced, and a quart of boiling water; when the vegetables are perfectly soft, add the young or smaller peas, previously boiled.

Split Peas and Barley Soup.—Take three pints of split peas, half a pint of pearl barley, half a pound of stale bread, and one turnip, sliced. Wash the peas and barley, and steep them in fresh water at least twelve hours; place them over the fire; add the bread, turnip, and half a tablespoonful of sugar; boil till all are quite soft; rub them through a fine colander, adding gradually a quart of boiling water; return the soup into the pan, and boil ten minutes.

Barley Soup.—Take four ounces of barley, two ounces of bread crumbs, and half an ounce of chopped parsley. Wash the barley, and steep it twelve hours in half a pint of water; boil slowly in a covered tin pan five hours, and about half an hour before the dish is to be served add the parsley.

Carrot Soup.—To seven pints of soft water put one pound of lean beef, cut thin, half a pint of split peas, one large carrot cut into pieces, one or two turnips, some celery and a large onion. Boil all together, until the liquor is reduced to one half the quantity, then strain it through a coarse hair sieve. Have ready three or four large carrots, half boiled and then grated fine; put this into your soup. Just

before it gets to the last boil, take a little fresh butter, about the size of a walnut, rubbed in flour, and put into the soup. Serve it up with fried bread.

If more soup is wanted, all the ingredients must be doubled, with the exception of the grated carrots, and if they are large, six will be found sufficient for a good sized tureen.

Spinach Soup.—Take two quarts of spinach, half a pound of parsley, two carrots, two turnips, one root of celery, and two ounces of cream. Stew all the ingredients in a pint of water—a few lemon parings may be thrown in to flavor—till quite soft; rub through a coarse sieve; add a quart of hot water, and boil twenty minutes.

Corn Soup.—Grate eighteen ears of sweet corn; boil the cobs in three quarts of water one hour; boil the grated corn in the same water, with a pint of milk, a tablespoonful of butter, with a little flour braided into it; pepper and salt to taste. When it boils, set it upon the top of the stove and stir in three eggs. Do not strain it.

Tomato Soup.—Scald and peel good ripe tomatoes; stew them one hour, and strain through a coarse sieve; stir in a very little wheaten flour to give it body, and brown sugar in the proportion of a teaspoonful to a quart of soup; then boil five minutes. This is one of the most agreeable and wholesome of the “fancy dishes.” Okra, or gumbo, is a good addition to this and many other kinds of soup.

Rice Soup.—Boil one gill of rice in a pint of water till soft; then add a pint of milk, a teaspoonful of sugar, and simmer gently five minutes.

A Swiss Soup.—Boil three pounds of potatoes, mash them well, and add slowly some good broth, sufficient for the tureen. Let these boil together, then add some spinach, a little parsley, lemon, thyme and sage, all chopped very fine. Boil together five minutes; pepper and salt to taste. Just before taking it off the fire to serve, add two well-beaten eggs.

BROTHS.

Vegetable Broth.—This may be made with various combinations and proportions of vegetables. For example, four turnips, two carrots, one onion, and a spoonful of lentil flower. Half fill a pan with the vegetables, in pieces; nearly fill up the vessel with water; boil till all the vegetables are tender and strain.

Barley Broth.—Take four ounces of pearl barley, two turnips, three ounces of Indian meal, and three ounces of sweet cream. Steep the pearl barley, after washing, twelve hours; set it on the fire in five

quarts of fresh water, adding the turnips; boil gently an hour; add the cream; stir in the meal; thin it if necessary with more water, and simmer gently twenty minutes.

GRUELS.

Indian Meal Gruel.—Stir gradually into a quart of boiling water two tablespoonfuls of Indian meal, boil it slowly twenty minutes. This is often prepared for the sick under the name of “water gruel.” In the current cook books, salt, sugar, and nutmeg are generally added. Nothing of the sort should be used except sugar.

Oat Meal Gruel.—Mix a tablespoonful of oat meal with a little cold water; pour on the mixture a quart of boiling (some say hot, but not boiling) water, stirring it well; let it settle two or three minutes; then pour it into the pan carefully, leaving the coarser part of the meal at the bottom of the vessel; set it on the fire, and stir it till it boils; then let it boil about five minutes and skim.

Wheat Meal Gruel.—Mix two tablespoonfuls of wheat meal smoothly with a gill of cold water, stir the mixture into a quart of boiling water, boil about fifteen minutes, taking off whatever scum forms on the top; a little sugar may be added if desired.

Farina Gruel.—Mix two tablespoonfuls of farina in a gill of water; pour very gradually on the mixture a quart of boiling water, stirring thoroughly, and boil ten minutes.

Arrow Root Gruel.—Mix an ounce of arrow root smoothly with a little cold water; then pour on the mixture a pint of boiling water, stirring it constantly; return it into the pan, and let it boil five minutes. Season with sugar and lemon juice.

Sago Gruel.—Wash two tablespoonfuls of sago, and soak it a few minutes in half a pint of cold water; then boil a pint and a half of water, and, while boiling, stir in the sago; boil slowly till well done, and sweeten with sugar or molasses.

Tapioca Gruel.—Wash a tablespoonful of tapioca, and soak it in a pint and a half of water twenty minutes; then boil gently, stirring frequently, till the tapioca is sufficiently cooked, and sweeten.

Groat Gruel.—Steep clean groats in water for several hours; boil them in pure soft water till quite tender and thick; then add boiling water sufficient to reduce to the consistency of gruel. Currants and sugar may also be added.

Rice Gruel.—Boil two ounces of good clean rice in a quart of water until the grains are quite soft; then add two tablespoonfuls of sugar,

and boil two or three minutes. Currants make a good addition to this gruel.

Currant Gruel.—Add two tablespoonfuls of currants to a quart of wheat meal or oat meal ground, and, after boiling a few minutes, add a little sugar.

PREPARING AND COOKING FRUIT.

Cooking Apples and Pears.—Apples and pears cut into quarters and stripped of the peel, baked with a little water and sugar, and eaten with boiled rice, are capital food for children.

Parisian Mode of Roasting Apples.—Select the largest apples: scoop out the core without cutting quite through; fill the hollow with butter and fine soft sugar; let them roast in a slow oven, and serve up with syrup. We have eaten them prepared in this way most delicious.

A New Method of Cooking Apples.—"One of the most notable housewives and best cooks of the state," says the editor of an agricultural paper, "has a new way of cooking apples, at least, it was new to me, and will no doubt, be new to many others. She pares the apples and quarters them, placing them in a tin plate with the core side up; if dried apples, a little water is added; they are then set in the oven, which is always hot at meal time, and roasted; when done, they are slid on a common plate, and sprinkled with sugar, to be eaten warm, with bread and butter and cakes.

"It would require canned fruit of extra flavor to tempt me from the apple-dish, if thus prepared. Strawberries or half-ripe peaches are not to be talked of the same day."

A Substitute for Apple Sauce.—A lady communicates the following: "A dish of what I took for preserves was passed to me, which, upon tasting, I was surprised to learn contained no fruit. The ease with which it is prepared, and the trifling cost of its materials, are not its chief recommendations, for, unless my tasting apparatus deceived me, as it is not usually wont to do, it is emphatically a tip-top substitute for apple sauce, apple butter, tomato preserves, and all that sort of thing. Its preparation is as follows:

"Moderately boil a pint of molasses from five to twenty-five minutes, according to its consistency, when add three eggs thoroughly beaten, hastily stirring them in, and continue to boil a few minutes longer, when flavor with lemon or nutmeg."

Sorgo Apple Sauce.—Put a pint of sorgo syrup on to boil, and then beat three eggs to a froth. As soon as the syrup boils, pour in the eggs, stirring rapidly all the time. Let it boil three minutes, then pour it into a cool dish, and stir in a little good vinegar, or lemon juice. When cold it is a good substitute for apple butter.

Frozen Apples.—It is stated by those who have had the advantage of experience, that if apples which have been frozen are thawed in the dark they are uninjured: but if in the light they very soon become unfit for use. We should suppose the same results would most likely appear if the experiment were tried with potatoes. It is a very simple one.

Apple Pottage.—Take ripe apples carefully pared and cored, and put them in layers in a stone or earthen jar alternately with layers of sugar. If the apples are sweet, a little lemon or quince intermingled will give it a better flavor. Cover the whole with wheat paste or dough, and place the jar in the oven for baking. Let it remain all night and it will make a delicious dish for breakfast.

Peaches for Tea.—Pare ripe peaches, cut them in quarters, sprinkle well with layers of sugar, and let them stand an hour to extract the juice. Then cover with rich sweet cream, and there is nothing better.

Peaches à la Strawberry.—Ripe peaches cut in small pieces, in the proportion of three peaches to one apple, mixed with sugar, and left to stand for two or three hours, makes excellent mock strawberries.

To Peel Peaches.—Peaches are peeled without waste, when fully ripe, by pouring boiling water on them, and let them remain a minute, to cook only skin deep, as, in tomatoes.

Cooking Quinces.—Quinces baked in sugar and water, or syrup, or simply baked and eaten with powdered sugar, make a good substitute for baked apples.

Apples or quinces peeled and cored, with the hole made by coring filled with jelly or brown sugar, and baked with a little wine and sugar around, are very nice; with a custard poured over and baked, they are termed a "bird's nest."

Strawberries for Dessert.—Place your paste on the plate, as for a common custard—and cover with fresh strawberries; on to this pour your well beaten eggs, with the usual quantities of milk and sugar. When baked, cover with white sugar.

MAKING BREAD AND CAKE.

Bread—The Staff of Life.—There is Divine authority for saying that "bread is the staff of life." As to food, it is our mainstay; we never get tired of it; it is always palatable when we are hungry, as is cold water when we are thirsty.

An experienced physician of Attleborough, Mass., says: I find occasion every day to observe the results arising from the quality of food consumed by various classes, and the influence it has upon their condition in health and disease. The material taken at meals enters directly into the constituencies of the body, and it is no matter for surprise that the condition of the human subject should be immediately dependent upon the alimentary substances with which it is fed. The nutrient matter which nature provides is of uniform excellence; the earth presents it in a perfect form, and it is a matter for the most earnest regret that the subsequent processes to which it is subjected should ever tend to deteriorate the material. Wheaten bread may be made light, nourishing and palatable, and in this manner it goes much further than in a poorer form; at the same time the process by which it is prepared in this superior manner, is not more difficult, prolonged, nor laborious than to make a dark, heavy, unwholesome loaf. It is much more pleasant to consume good bread, and it yields a larger per cent. of nourishment from the quantity of flour employed.

In England the bread is uniformly good, and better still in France. Flour is too costly to expend in an uneconomic manner; and where population follows close upon supply, the principle is too important to neglect. The poorest peasant in France has every day better bread than the average of independent householders in New York; and when the comparison is extended to the greater number of families through New England, the result is vastly to our disadvantage. It is better for us to gain our sustenance principally from bread rather than an excessive use of meat. We are no vegetarians, however, and would recommend all who can get it to eat meat once a day. This suffices for health and strength. Beside being more salutary in many respects to make bread the staple article of consumption, it is vastly more economical. Beef is the most expensive manner in which grain can be consumed. The corn requisite to fatten an ox would sustain a given number of persons very much longer than the meat it has produced is capable of doing. This is a demonstrated principle in vital physiology.

Theodore Parker, in one of his sermons on the causes of sickness, gave the following playful definition of the unpardonable sin. He said he had sometimes thought that in man it consisted in making bad liquor from good grain; and in woman, from good flour making bad bread.

In order to have good bread there are three things very essential—good flour, good risings, and a careful hand.

Chemistry tells us that the best and most healthful bread is made by mixing flour, water, and yeast, by kneading it so effectually that the yeast and water shall come in contact with every grain of the flour, otherwise the bread will be bad; holes will be in it, and the crust will be easily detached from the soft part. Bad bread will be made out of the very best materials unless the kneading has been most thoroughly performed.

Home-Made Bread Cheaper than Bakers'.—A correspondent of the *Boston Transcript* makes the following statement: By repeated experiments in my family I have found that in making domestic bread—using yeast prepared in the house—a pound of good flour will yield very nearly two pounds of bread. The only addition made to the flour was about a tablespoonful of Indian meal, water and salt, to two three pound loaves. A pound of flour never failed to yield a pound and three-quarters of bread. Then I make this estimate: A barrel of flour of 196 pounds made 343 pounds of bread; 343 pounds of bread, if bought of the baker, in pound loaves, at five cents, would have cost me \$17.15. My barrel of flour cost me at the time of these trials between \$7 and \$8. This is an argument for baking one's bread instead of buying it. Even at present prices much money would be saved by baking at home.

But it used to be rare to find a five cent loaf that weighed over fourteen ounces. Therefore buying bread was still more expensive than my calculation makes it. In these times five cent loaves weigh ten or ten and a half ounces, sometimes less, so that the price a purchaser of bakers' bread actually pays for a barrel of flour is enormous. When flour is even \$12 per barrel, the cost of five cent loaves is equal to paying \$25, the loaves weighing ten and a half ounces.

Bread Making.—A woman of much experience as a successful bread maker, gives the following: "To make yeast, take two handfuls of hops, three pints water, six potatoes; boil all till the potatoes are soft; pare them, mash through a colander, strain the liquid; then put it in your preserving kettle over the fire, with the potatoes added; also, one cup sugar, one tablespoon salt, one tablespoon ginger; then add

flour enough to make it the consistency of paste: let it boil five minutes, stirring it all the time. Turn out, and when partially cool, add half a pint of good yeast. Let this stand until fermentation takes place. In the winter I keep it in a stone pot in the cellar, but in the summer I dry it by mixing it with corn meal, and spreading it on a table and exposing it to the air (no sun.) Now we have good yeast, we will proceed immediately to make good bread. Wash and pare two dozen good sized potatoes; boil them, with a large handful of salt, till reduced to a fine pulp; strain through a collander, add three pints sweet milk, and when sufficiently cool to bear your hand in it, stir in as much flour as will make it into a thick batter; to this sponge add a coffee cup of the yeast. I always make my sponge at night. In the morning I add six quarts sweet milk and three gills lime water, and knead into a stiff dough.

"Some housekeepers use alum, as it makes the bread fairer, but I prefer lime water, as that coagulates the gluten; and it requires less baking, and retains its moisture longer. And I think it much healthier than alum, and health is the great desideratum. In two or three hours after you knead your bread, it will be as light and porous as a honeycomb; knead it down, and when it has again risen, mold and put it into pans. Let it stand till it rises again, then wash the loaves over with cold water; this prevents the formation of too hard a crust; bake in a well heated oven. When baked, wash again, wrapping it up closely in your bread cloth. Wrapping the bread up in the steam till cold, prevents it from becoming hard and dry. If your flour is good, bread made in this way will be equal in appearance to the best bakers' bread, and in point of sweetness and economy, far, far superior. The quantities I have named make twelve good sized loaves, and my family requires such a baking twice a week. For many years this plan has given me good bread, and I hope others will try it."

Premium Wheat Bread No. 1.—The Chenango Co., N. Y., Agricultural Society gave a premium for bread made after the following recipe:—One spoonful of hop yeast; two potatoes boiled; one pint of water, and make a sponge, and when light or sufficiently raised, mix hard and let rise, and when it is light again mold it over and bake when light.

Premium Wheat Bread No. 2.—Grate one-half dozen potatoes; jam, and add one quart of water; one cup of hop yeast at night, and in the morning when light, add three teaspoonfuls of sugar, and flour to form a dough. Let rise; when light, put it in tins; let rise again, and bake one-half hour.

Dry Yeast Bread.—Put a few cakes of yeast to soak in a half pint of warm water in the evening, letting them soak until the next evening. Then set your rising by boiling and mashing fine two quarts of potatoes; to these add water sufficient for the rising, about milk warm, and a tablespoonful of salt; then stir in your flour and yeast until a proper consistency; then set away to rise until morning; then add flour to the rising, knead it well and set it away to rise; after rising mold it into loaves and set it to rise a short time again, then bake. During the summer, instead of boiling potatoes, you can boil thick sour milk; take the whey which separates and set your rising as above. When the yeast cakes are new put them to soak in the morning previous to setting your rising.

Salt Rising Bread.—Recipe from the Shaker community at Pleasant Hill, Ky.: Take boiling water and cool it until you can just bear your hand in it. Then stir in flour until it is a thick batter; set it in a warm place and exclude it from the air, and in a few hours it will rise to a sponge; then take some milk and boil it, and cool with cold water until it is just stinging hot. Then get your flour and make up your bread with this milk. Be careful not to put the rising in until the dough is cool enough to bear your hand in; work it well after the rising goes in, then set it away in a warm place, and let it rise well; then mold it into pans, and let it rise again, and when the pans are full and light it is ready for baking.

Brown Bread.—Take two quarts of corn meal, two do. of shorts, one tablespoonful of salt, one teacup of molasses. Stew a squash or a good pumpkin in water sufficient to wet this mass; pour it on boiling hot. When cool enough, add a pint of yeast and two quarts of wheat flour; this will make four loaves. When light, bake three hours.

Superior Brown Bread.—Take of Indian meal and canaille, each three and a half teacupfuls, or three of Indian meal and four of unbolted wheat—one quart sour milk—half a teacupful molasses—one egg—one teaspoonful saleratus—then steam three hours and bake half an hour.

Premium Brown Bread.—One quart rye meal; two quarts Indian meal; two tablespoonfuls of molasses; mix thoroughly with sweet milk; let it stand one hour, then bake in a slow oven.

Graham Bread.—One quart of milk; scald one-half of it and pour on one quart of good Graham flour; then add the rest of the milk warm; and flour enough to stir as thick as possible with a spoon, adding half

a cup of good molasses while stirring it—then bake *slowly* for an hour.

Another.—Two teacupfuls of sweet milk, two of sour milk, half a cup of molasses, one teaspoonful of soda, Graham flour enough to make a thick batter—bake slowly an hour. This is by most people considered better than the former.

Graham flour to be good should be made of the best white winter wheat, and great care should be taken by the miller that it be not ground too fine, or it is spoiled, and will not rise well.

A Wholesome and Economical Bread.—Mix unbolted wheat meal with cold water or milk, to a stiff batter. Dip it with a spoon upon a pan, and bake twenty to thirty minutes in a hot oven.

Another Economical Bread.—Take scraps of flour bread, break in a pan or deep dish, cover it with milk, let it stand until soft, then mash. If very sour add half the amount of sweet milk, if not add sour milk; add half a teaspoonful of soda to the quart, two eggs and a little salt; stir in corn meal enough to make a batter; bake in a quick oven.

Bread from Heated Wheat.—Prof. Nickels, of France, has made a series of experiments with heated wheat, which had been exposed to moisture and a fermenting temperature, and says that good bread may be made from it by adding four ounces of salt to every thirteen pounds of flour. Such wheat has always been considered completely ruined for making bread. Thousands if not millions of bushels of wheat are annually injured by water and heating, when transported in bulk on our lakes and canals. Such wheat sells in New York for a very few cents per bushel. It is chiefly used for making starch.

New Kind of Bread.—Made of wheat flour and white beets, mixed in equal proportions, costs but very little more than half as much as ordinary bread, is equally nutritious and very palatable.

Apple Bread.—A French officer has invented and practiced with great success a method of making bread with common apples, very far superior to potato bread. After having boiled one-third of peeled apples, he bruised them, while quite warm, into two-thirds of flour, including the proper quantity of yeast, and kneaded the whole without water, the juice of the fruit being quite sufficient. When the mixture had acquired the consistency of paste, he put it into a vessel, in which he allowed it to raise for about twelve hours. By this process he obtained a very excellent bread, full of eyes, and extremely palatable and light.

Pumpkin Bread.—Stew a ripe pumpkin until perfectly soft and

quite dry ; strew in the usual allowance of salt and some shortening. Mix with the pumpkin as much Indian meal as will make the dough stiff enough to form dodgers. In our childhood we used to see bread thus prepared with ripe apples instead of pumpkin ; it was too sour to please us when simply buttered, but with honey or molasses overspread, we thought it a famous accompaniment to a mug of milk.

Pumpkin bread made by the receipt for Indian egg bread, is very nice. Substitute pumpkin for one-half the meal.

Rice Bread.—Take one teacupful of rice boiled in water until soft (if for breakfast it it should be boiled over night,) or use cold rice left from a previous dinner ; mix with it two beaten eggs, a *little* more than a pint of milk, as much *less* than a pint of Indian meal as you have *over* the pint of milk, and two tablespoonfuls of flour. This will fill two middle sized square tins, and requires to be baked nearly an hour. I think every one who appreciates good, wholesome bread, will acknowledge this to be worth recommending.

Buckwheat Bread.—To one quart buttermilk, add a teaspoonful of soda, and flour enough to make a thin batter—put in an egg if convenient, and bake in a quick oven. Try it. The contributor of this says it is as good as pancakes, and far less trouble to prepare.

Test for Bread.—Of pure bread two thousand grains will not yield more than from fifteen to twenty-five grains of ashes ; if more is found, there is fraud in the manufacture.

To Keep Bread Soft.—A correspondent says: I have had the best success with bread made from the old fashioned hop yeast, scalding the flour and leaving the dough quite soft ; but most kinds of bread, if carefully made, will keep well, if taken proper care of ; but if left on a pantry shelf, or exposed to the air anywhere, it will become dry. A small tin chest, shutting tightly, has answered this purpose admirably in our family. A stone jar, tightly covered, is also excellent. Either should be kept on the cellar bottom.

To Make Hop Yeast.—One handful of hops steeped in two quarts of water ; three large potatoes boiled and peeled, and rubbed through a collander with three tablespoons flour,—strain the water upon them while rubbing them through. When not too hot, add one teacupful of yeast, and let it rise till light. Add half a teacupful each of salt and sugar, and bottle for use. Shake well before using, and keep in a cool place. Two-thirds of a teacupful is sufficient for four good sized loaves.

Another.—One large handful of hops, three potatoes, two quarts of water—all to be boiled together till the potatoes are very soft ; then

mash up, and strain the liquor hot on one quart of sifted flour. Add, after it is cool, one-half pint of yeast. Highly recommended.

Another Yeast.—Boil one pound of flour, a quarter of a pound of brown sugar and a little salt in two gallons of water for an hour. When milk-warm, bottle and cork it close, and it will be ready for use in twenty-four hours. This is said to be highly commended by the general of one of the brigades of our army.

To Extract the bitter qualities from Yeast.—Bake a small piece of bread quite black and drop into the yeast; or, if it be very bitter, put a small quantity of bran into a small sieve, and strain the yeast through. These remedies have never been known to fail. Another mode is to pour cold water over the yeast some time before you require it; the yeast will sink and the bitter quality remain in the water, which pour off.

Salt Emtjings.—A correspondent of the *American Agriculturist* recommends the following: To one pint of warm water add a teaspoonful of sugar, half a teaspoonful of salt, and butter the size of a walnut. Thicken them with flour—rye meal is better. Set the dish containing the mixture in warm water. Stir the contents often during the first three hours. Let it stand until light.

Rolls.—Stir a tablespoon of yeast into a teacup of warm water; work up with it flour into a soft dough, allowing a teaspoon of salt and piece of shortening as large as the yelk of an egg to each quart of flour. When this rises lightly, knead it again until it blisters freely; make it out in rolls, rise and bake. The Virginia Housewife directs rolls to be risen three times. The first time in a yeast, the second in a sponge, and then after being made out into rolls.

The Shakers, whose exquisite breads are far famed, use hop yeast, rise twice, and make up large quantities at once. They set away a batch of dough in a cold place, and make from it rolls at any time. The only housewife we have ever known rival them makes up her bread entirely of fresh potato yeast. The time which bread takes to rise varies according to weather or the temperature of the room in which the process is undergone. When it worked the first time, and is made into rolls, if it is too fast for you, set them away in a cool place until it is time to use them. They will be ready for breakfast, and may be baked in a dish or in muffin rings, and you will call it Sally Lun, or muffins, accordingly.

French Rolls.—Add two ounces of butter and a little salt to a pint of boiled milk; while tepid, sift in one pound of flour, one beaten egg,

one tablespoonful of yeast; beat these together well; when risen, form the rolls with as little handling as possible; bake on tins.

Rusks.—The preparatory steps for rusks are the same as for rolls. When the yeast is ready, mix a quarter of a pound of sugar into a quart of flour, a piece of butter as large as a hen's egg, and a teaspoon of grated nutmeg. Stir three well beaten eggs into the yeast, mix to a soft dough, knead well, make into little cakes, rise and bake well. Never allow this bread to get cold during the whole process. When done, rub over with the white of an egg, and sift over the cakes some powdered white sugar.

Biscuit.—When your hard yeast bread is ready to mold up, take a large bowl full of the dough, a teacupful each of sugar and butter, grate in half a nutmeg, knead them together, make them into balls or loaves about an inch and a half in diameter, put them in a tin, let them rise, and bake.

Soda Biscuit.—Into one quart of flour rub a teaspoon of salt and one of best cooking soda. If you have no sour milk, put with the soda two teaspoons of cream of tartar. Work it into a smooth, rather soft dough with cream. If you use skim milk, buttermilk or water, you must allow a large spoonful of shortening.

Raised Biscuit.—Take some of the bread dough when light, knead a piece of butter as large as an egg into dough enough to fill a long tin; mold into small biscuits; let them rise again; bake for twenty minutes.

Cream Tartar Biscuit.—Take a small milk pan half full of flour, and mix thoroughly in it one tablespoon of cream tartar and two of shortening. Dissolve half a tablespoonful of soda in a pint bowl two-thirds full of sweet milk, mix them hard enough to roll good. These are easily and quickly made.

Beaten Biscuit.—Work up one quart of flour (with salt as usual,) with thick, sweet cream into a stiff dough. Beat it until entirely smooth and soft enough to roll, and cut into biscuit of half an inch in thickness. If you have not cream, use a tablespoon of best butter, and wet with sweet milk. These, baked slow and hard, so as to be done without browning, make the best home-made crackers we have ever seen. If rolled out as thin as a knife blade, cut into large cakes, pricked thickly and baked a light brown, they are known as "Quim-inies," nice for tea and dispeptics. If baked in irons, like waffles, but very shallow, they are called wafers. Some of these wafers buttered, and then having sugar and powdered cinnamon sifted over them, with

a browning in a brisk oven, are very popular with lovers of sweet breads.

Premium Biscuit.—Take some of the bread dough, (see premium bread, No. 1,) in the morning, as much as would make a loaf of bread, add one cup of butter; mix well; let rise, then make into biscuit; one cup of hop yeast; set the sponge at night; add flour to the above to make a batter; in the morning add one-half pint of milk, one cup of sugar, one of butter, one egg, one nutmeg, flour to make it sufficiently stiff; let rise, then roll it out and cut it out; let rise, then bake.

Ginger Biscuit.—Rub half a pound of fresh butter into two pounds of fine flour, add half a pound of sifted sugar, and three ounces of pounded ginger. Beat up the yolks of three eggs and take a little milk, with which make the above ingredients into a paste. Knead it all well together, and roll it out extremely thin, and cut it into the form of round biscuits with a paste cutter. Bake them in a slow oven until crisp, taking care that they are a pale brown color.

Wine Biscuit.—Rub into one pound of dry flour four ounces of butter, four ounces of white powdered sugar, one egg and a spoonful or two of thin cream to make it into paste. When mixed, put currants into one half and caraways into the rest. Bake on tins.

Apple Biscuit.—Boil apples in water until soft, then take them out and rub through a wire sieve, flavor with a drop or two of essence or oil of lemon, and if you like the taste, a drop of the oil of cloves. Add lump sugar equal in weight to the pulp, and grind with it; roll the sugared pulp into flat cakes about a quarter of an inch thick, and cut them into shapes. Finally dry them in a very slow oven, the heat not being strong enough to bake them or melt the sugar; they may be dried also by the summer's sun. They often require to be partially dried before they can be rolled out. They may, instead of rolling, be dropped on to paper, or put in a ring of paper upon a slightly greased iron plate.

Milk Biscuit.—Put the yeast in one quart of milk, and set it to rise in the middle of flour. When light, knead it and break it until it becomes solid.

Orange Biscuit.—Take the grated rind of an orange, six fresh eggs, a quarter of a pound of flour, and three quarters of a pound of powdered sugar; put these into a mortar and beat them to a paste, which either put into cases or cut out, and bake them like other biscuit.

Naple Biscuit.—Take twelve eggs, leaving out the whites of four; beat the yolk separate from the white. When they are very light,

add one pound of fine white sugar, eight drops of lemon, three-quarters of a pound of flour, alternately beaten in with the whites of the eggs. Beat them all together until very light, and then bake them.

Tea Biscuit.—Two pounds of flour, two spoonfuls of yeast and a little warm milk. Mix them together adding one-quarter of a pound of melted butter, with milk to make it into a stiff batter. Bake in a quick oven in any shape you please.

White of Eggs in Raised Biscuit.—The white of an egg kneaded into the dough with the shortening for raised biscuit, makes them nice.

Sally Lunn.—Take a stone pot, pour in one pint bowl of sweet milk, half a teacup of baker's or other yeast, quarter of a pound melted butter, a little salt, and three beaten eggs. Mix in about three pint bowls of flour. Let it stand several hours, or until quite light; then put into Turk heads, or other tin pans, in which it should again rise up before being shoved into the oven, to be "brought out" and presented to your friends as the beauty and the belle of the evening.

Another Method.—Melt into one quart of sweet milk a quarter of a pound of butter. Beat six eggs very light and stir into the milk; also one teaspoonful of salt, and a teacup of fresh yeast. Stir into the mixture as much flour as will make a thick batter, and set it to rise. Bake in pans as egg bread, or in muffin rings. If you bake in pans, split open the cakes and pour over liberally of melted butter. In summer, this bread will rise in the kitchen in three or four hours; in colder weather, it takes longer. If it should sour, stir in a little soda.

Another.—A pint of the best new milk lukewarm; add to it one-quarter of a pound of butter, a little salt, a teacupful of yeast, a pound and a half of fine flour; mix them together, and let it stand three-quarters of an hour. Bake them on tins nearly an hour.

Baker's Varnish.—A varnish, such as bakers use, can be made for rusks by beating the yolk of an egg and one teaspoonful of pulverized sugar together. Spread on just before baking. Put them on round pie tins to rise. They look nice on the table.

Muffins.—From the *American Agriculturist*: Take one quart of new milk, two eggs, two tablespoonfuls yeast, butter the size of an egg. Warm the milk and mix with other ingredients at night; in the morning, turn into muffin rings, or drop on tins, and bake a light brown. To be eaten with butter for breakfast.

Cream Muffins.—Also from the *Am. Agriculturist*. Mix one pint

sour cream, (but not very sour) one pint flour, three eggs, one teaspoonful salt, half a teaspoonful soda or salaratus, whites and yolks of eggs beaten seperately. Stir in the whites the last thing. They are much nicer baked in new cups, which can be bought of a cheap kind. Wipe them clean with a dry-cloth, never wet or grease them; in a short time the muffin will shine like varnish on the side next the cup.

French Muffins.—A quart of warm water, in which has been dissolved a quarter of a pound of hard yeast, and mixed with sufficient flour to make rather a stiff batter, set in a warm place for hours, then stir it down and divide it into pieces of a quarter pound each, which mold with hands, and put into wooden trays containing a round bed of flour for each; let them stand two hours in a warm place, and cook them upon an Iron griddle turning them over when nicely risen. They will be baked in about ten minutes if the stove is sufficiently hot.

Guyandotte Muffins.—Two eggs, three cups of corn meal, three cups of flour, stir in sour milk enough to make a stiff batter, add three teaspoonfuls of melted lard, a little salt and one teaspoonful of soda dissolved in warm water. Pour your rings half full, and bake quick.

Superior Mush Muffins.—From A. B. Allen, in the *Am. Agriculturist*: Make the mush in the evening. Next morning add eggs at the rate of three to a quart of the mush, also six or seven tablespoorfuls of flour, and two of lard.

Crumpets.—Mix a quart of good milk with water to make a batter, add a little salt, an egg, and a tablespoonful of good yeast, beat well, cover it up, and let it stand in a warm place to rise. Clean the muffin plate, or not having this, a frying pan, while warm over the fire, and rub with a greased cloth, or a little butter tied up in a piece of muslin, pour a cupful of the batter into the pan, or on the plate; as it begins to bake, raise the edge all round with a sharp knife. When one side is done, turn and bake the other side. Crumpets are generally now poured into proper sized rings of tin, which makes them all of a size and thickness. A little rye flour is an improvement.

Soda Crackers.—To fourteen cups of flour, add one cup of lard, four teaspoonfuls of cream tartar and two of soda. Rub these ingredients well into the flour, add three cups of water, water thoroughly and bake quick. Superior to any we ever purchased.

Tea Buns.—One pound and a quarter of flour, one-half pound or currants (well washed,) two ounces of butter rubbed in the flour, about a pint of sweet milk warmed, two spoonfuls of yeast, the yelk of an

egg well beaten, carraway seeds to your taste; mix well these ingredients together, and beat them up as for a seed cake; set them before the fire to rise for an hour, make them up in what shaped cakes you please, lay them on tin pans for awhile before the fire, and feather them over with white of egg before baking them.

Drop Short Cake.—One quart of flour; one teaspoonful soda; three do. cream tartar. A piece of butter the size of an egg, and the same of lard, to be rubbed in as you would pie crust; sufficient sweet milk to make them as stiff as pound cake; drop them on buttered pans. Recommended as excellent.

Strawberry Short Cake.—By a correspondent of *American Agriculturist*: Mix dough as for biscuit; roll it thin as pie crust and cut in sheets the size of a bake tin. Place one of these on the tin, then a layer of ripe strawberries, then more dough, and so on for three layers of dough, and two of berries. Cut small holes in the top crust, pour in a little water, and lay on a few small lumps of butter, and bake half an hour. Serve with sweetened cream.

Breakfast Cake.—Take equal parts of wheat flour, buckwheat, and corn meal sifted enough to make a batter with one pint skim milk (sweet,) one pint sour milk, or butter milk, one egg, one teaspoonful each of salt and cooking soda. Bake and serve up the same as buckwheat cakes.

Another.—One pint milk, two or three eggs, two teaspoonfuls cream tartar, one of soda, flour sufficient to roll out. Roll quite thin, and cut into round, square, or diamond shape, according to fancy. Fry in hot lard like dough nuts. To be eaten with butter.

Waffles.—To one quart of milk, quarter of a pound of soft butter, six eggs well beaten, add salt to season agreeably. We do not practice rising waffles, but it is the way of many good housekeepers, and of course is done with the usual allowance of yeast.

Another.—Two cups sugar, one cup butter, two-thirds cup milk, half teaspoonful soda, one teaspoonful cream tartar, two eggs, and flour enough to thicken.

Another.—Melt a large spoonful of butter in a pint of sweet milk; beat three eggs well, and mix in the milk. Sift one quart of flour, rub in it one teaspoonful of salt, and two of cream tartar, and stir it into the milk until a perfectly smooth batter is made. Dissolve one teaspoonful of soda in a tablespoonful of boiling water, and mix in just before baking. Have a clear fire and your irons clean and well greased. Serve with melted butter poured over.

Indian Meal Waffles.—Boil two cups of hominy very soft, and an

equal quantity of sifted Indian meal, a tablespoonful of salt, half a teacup of butter, and three eggs, with milk enough to make a thin batter. Beat all together and bake in waffle irons. When eggs cannot be procured, yeast is a good substitute—put a spoonful in the batter, and let it stand an hour to rise.

CORN BREAD.

A bushel of corn contains more nutriment than a bushel of wheat; but corn meal should not be ground fine, as it will not keep sweet. There is no grain that can be put to so many good uses and served up in so many different ways as corn and corn meal. First we have the green corn, roasting ears and soup in the early, and the dried corn soup and hominy, the balance of the year. These dishes every good housekeeper knows how to prepare, being the most simple in the culinary art. And then by grinding it into meal, what visions of delicious eating float before the eyes. First we have the corn cake, made of meal and water, and a little salt, if you are too poor to use eggs and milk, mixed into a dough and baked on a griddle. Then corn bread or pone, which can only be made properly by about one housekeeper in ten. Then mush and milk, and fried mush. We have never seen the individual that did not like one or the other. Many fail in making good mush by not boiling it enough. When it is merely scalded it has a raw taste. Then there is a very good corn meal pudding, made by stirring the meal into scalded skim milk till it is as thick as gruel, and when cool, add ginger, cinnamon, nutmeg, salt, and sweetening to suit the taste, and a little fine cut suet, and some raisins or dried peaches and a fine cut apple. It should bake an hour or more, according to size. This is a good pudding. And then see into how many dishes corn becomes a palatable and favorite mixture. It is the cheapest and most wholesome food that man can live on, and should be on the table of both rich and poor more frequently than it now is, in some of its many forms.

To Improve Corn Meal.—Kiln-dry it by spreading it on a dripping pan, and heating it in the oven. Remember that grinding fine injures the richness of corn meal.

To Make Corn Bread.—Two quarts corn meal, one quart rye, one quart sweet milk, one quart buttermilk, one teacup of molasses, one spoonful of salt, and one teaspoonful of soda. Beat with a spoon until well mixed. The crust, if not burned, will make an excellent substitute for coffee.

Another.—A Massachusetts physician says: Corn bread properly made is a most palatable food, but it is not often well made. Too frequently it is heavy and disagreeable. Made as it should be it is a regal loaf. He then gives the following method practiced by his wife:—

Mix up with warm water enough to make a thin dough, two quarts Indian meal sifted but just sufficiently to remove the coarse hulls; add a teaspoonful of salt, one half pint of molasses, one tablespoonful of dissolved saleratus and one quart of rye meal, with water enough to make it of the proper consistency for a loaf. Bake the whole of it in a single iron pan covered with a loose lid to keep the upper crust from burning. Four hours in the oven is none too much, and a common cooking stove with a steady fire is better than a brick oven. This loaf, not costing more than ten or twelve cents, will make several meals for a family. Now, how to eat it: When it is cold, and never before, cut off some slices and lay them lightly in a pan so that no two shall overlap; put the pan in the stove oven and shut the door. As the bread warms, the vapor prevents it from scorching, if not left in too long; and when it comes upon the table it is light, porous, equally warmed through without being hardened by the fire, and palatable enough for an epicure.

Another.—For two loaves, take six quarts Indian meal, three quarts wheat flour, half a pint good molasses, one pint good yeast. Add warm water enough to reduce it to a thick batter—pour it into the dishes intended to bake in, and set in a warm place to rise. Bake three hours. Eat warm or cold. The advantage claimed for this over other recipes, are, that it is easier made, as no kneading is required; no milk, sweet or sour, is required, nor rye meal; and it makes sweeter and better bread. It is recommended by a correspondent of the *Country Gentleman*.

The Prize Loaf Corn Bread Recipe.—The following is the formula given for making corn bread like the loaf which took the first prize at Orange Judd's great corn bread show. To two quarts of meal add one pint of bread sponge; water sufficiently to wet the whole; add half a pint of flour, and a tablespoonful of salt; let it rise; then knead well for the second time, and place the dough in the oven, and allow it to bake an hour and a half. The first premium, \$10, was awarded for the above to Mrs. James O'Brien, Carrick, Pa. This recipe was successful among two hundred and twenty competitors.

A Delicious Corn Bread.—Boil a teacup of rice. While scalding hot pour it on to a little less than a quart of corn meal—four eggs well

beaten, a tablespoonful of lard, a teaspoonful of soda, a little salt, and enough sour milk to make a thin batter.

The best Corn Bread.—Take three pints of corn meal and a quart, more or less, of sour milk, stir well together, forming a thin batter; add three eggs, a little salt, and a teaspoonful of salaratus; mix all well by a thorough stirring, then pour the batter pans, half an inch or so in depth, and bake with a quick heat. These quantities will suffice for a family of six or eight persons.

Another Indian Bread.—Take two quarts of Indian meal, pour on boiling water enough to make the meal quite wet; when cool, add a quart of flour, half a pint of risings, a little salt, and half a cupful of molasses. Mix altogether, put into large basins and let it rise; bake for three hours with a slow fire.

Indian Bread without Yeast.—Three teacupfuls of Indian meal, two of rye or wheat flour, one-fourth of a teacupful of molasses, one teaspoonful of salt, and one and a half teaspoonfuls of saleratus. Mix in one quart of sour milk. Bake two hours. The family that contributes this pronounce it excellent, especially when first made.

Steamed Indian Bread.—A lady at Flockville, N. Y., says she has never seen any corn bread that could come up to the following: "One pint of buttermilk, one pint of Indian meal, one pint of coarse flour, one cup of molasses, one teaspoonful saleratus. Add a little ginger if you wish. Mix well together these ingredients; put into a two-quart basin, then set it in a steamer and steam three hours. See that the water does not stop boiling, and avoid lifting the cover to 'peep in.' When through steaming, set it in the oven for ten or fifteen minutes, so as to form a sort of crust. Try this, and I know you'll pronounce it good."

Corn Batter Bread.—Take six teaspoonfuls of flour and three of corn meal, with a little salt; sift them, and make a thin batter with four eggs and a sufficient quantity of milk; bake in small pans in a quick oven.

Corn Cake.—Take one pint of corn meal, one quart of sour milk, four eggs, well beaten, two tablespoonfuls of sugar, and soda enough to sweeten the milk. Mix all well together, and bake in pans. To have any corn cakes with eggs light, the eggs must be well beaten.

Another.—One pint of Indian meal, one pint of sweet milk, two tablespoonfuls of melted butter, two eggs, one teaspoonful of cream tartar, half a teaspoonful of soda, a small handful of sugar.

Another.—Take one pint of sour milk, put into it a teaspoonful of soda, and beat it as you would eggs. Stir into it a pint of meal, one

teaspoonful of cream tartar ; add the milk, stir them up quickly. Bake half an hour in a tin cake pan,

Corn Meal Cup-cakes.—One quart corn meal, one pint wheat flour, three pints milk or water, one teaspoonful salt, one of lard, one of soda, two of cream tartar, one-half cup of molasses, one or two eggs. Bake in small patty pans, or old teacups.

Corn Griddle Cakes.—The following is said to be excellent : Scald at night half the quantity of meal you are going to use, mix the other with cold water, having it the consistency of thick batter ; add a little salt, and set it to rise ; it will need no yeast. In the morning the cakes will be light and crisp. Skimmings where meat has been boiled is best for frying them with. Fry slowly.

Indian Batter Cakes.—On a quart of corn meal pour enough scalding water to wet it. Stir hard until it is smooth and nearly cool. Melt into it a large spoonful of melted butter ; mix in six well beaten eggs and a pint of sweet milk, also a handful of wheaten flour ; sprinkle in a due quantity of salt. Fry your cakes on a clean, smooth, hot griddle. Fry of regular shapes and brown. If the batter needs thinning, use a little milk.

Indian Mush Cakes.—Take one quart of water, and, when boiling, thicken it with meal. Have it about as thick as you would mush. When a little cool, add two tablespoonfuls of melted butter, two of yeast, and enough flour to make it about as stiff as bread dough. Let it stand over night. In the morning, add enough flour to roll out in little cakes, and bake on the griddle.

Indian Biscuits.—Take one quart of cold Indian mush, or hasty pudding ; put it into a pan containing about the same quantity of either coarse or fine wheat flour, add milk or sweet cream sufficient to make the mush thin, say one-half pint ; then mix the flour and make up into biscuits as soft as you can well handle them, and bake in a quick oven twenty minutes. Cold boiled hominy with flour alone, mixed and made into biscuits, makes nice breakfast cakes.

Corn Bread Dodgers.—Sift your meal, allow the usual quantity of salt, work it up with water, (hot we prefer,) into a pretty stiff mass. Better for standing awhile. Grease a hot pan and lay in it longish cakes, about the length of your hand, upon which the said member of your body usually leaves its print. Bake in a quick oven. The crust of a good dodger should be brown, and no thicker than a knife-blade.

Virginia Corn Dodgers.—From the *Agriculturist* : Take three pints of unsifted yellow corn meal, one tablespoonful of lard, and one

pint of milk : work all together, and bake in cakes the size of the hand and an inch thick. To be eaten hot, with butter, molasses, or both, as preferred. Excellent.

Indian Pone.—Into one quart of warm water stir a tablespoon of salt and a pint of yeast.

Having sifted a gallon of meal into a bowl, make a hole in the center and pour in the yeast water. Knead as much of the meal as the water will wet into a soft mass.

Sprinkle a teacup of flour over the dough, cover it, and set it to rise in a warm place. When the flour cracks, with as much warm water as will make up the rest of the meal and flour, work it into a stiff dough; knead it long and hard. Put it into a deep pan and bake it long, until dry and sweet. Strew bran thickly over the crust after it is brown, and you can continue to bake the loaf without increasing the thickness and hardness of the crust.

This bread is best in large loaves, and is most successfully baked in a Dutch oven.

Hoe Cakes.—These are made of Indian meal mixed with milk into a dough rather stiffer than batter. They are baked just as batter cakes, and are better for a little shortening.

Johnny Cake.—This is hoe cake spread on a smooth board and baked before a clear, brisk fire until well done.

A Johnny cake to be eaten with meat, should be made as follows : One teacupful of sweet milk, one of buttermilk, a little salt and a little soda; stir in meal enough to make a soft batter; bake forty-four minutes.

Another.—Three cups sour milk, three cups Indian meal, three tablespoonfuls molasses, one egg, with a little flour, salt and saleratus.

Another.—For those who prefer it without the addition of eggs and flour : One and a half cups sweet cream, five cups buttermilk, one small tablespoonful granulated or other good sugar, two small teaspoonfuls salaratus, and a little salt. Add corn meal to make a batter as stiff as can be conveniently stirred with a spoon. It should be briskly stirred, turned into a well buttered dripping-pan, and baked in a quick but not too hot oven.

Another.—One quart of milk, two eggs, four tablespoonfuls of wheat flour, one teaspoonful of salt, and one teaspoonful of salaratus. Indian meal enough to make a thick batter. Butter and bake on a long tin half an hour. Serve hot for tea with butter and sugar.

Bannocks.—Two cups of Indian meal, two of flour, one tablespoonful of molasses, a little salt, one pint of sour milk, one teaspoonful of

salaratus. Bake in rings or pan about twenty minutes. Very light and nice.

Egg Bread.—Beat four eggs very light, and stir into a pint of sweet or sour milk with a little soda in it; mix in a large spoon of butter. Over a quart of sifted meal pour enough hot water to scald it, stirring it to a stiff, smooth mass. Mix this into the milk, beat it well, and bake it in a pan or muffin rings. Very good bread can be made by the above recipe without eggs if soda and sour milk are used. We do not vouch for the healthiness of this or any other soda bread.

Fine Buckwheat Cakes.—Add one-sixth part unbolted wheat flour to the buckwheat. Mix with fresh buttermilk, or cold sour milk. Use soda—no emptyings. More salt is necessary than with emptyings. Bake at once. The pancakes will be white, light and tender, and can in this manner be made on the shortest notice, at any time.

Another.—A correspondent of the *Country Gentleman* says: Buckwheat cakes are better to be mixed with a part milk, even if raised with yeast. But the following is preferred in our family: Take one quart of buttermilk, one quart of water, a teaspoonful of soda, and a little salt; stir in flour sufficient to make a thinish batter, and let it stand over night. In the morning add a half teaspoonful of soda, and flour to make it thick enough to fry. Bake on a hot griddle until a nice brown. When done the cakes should be placed in a dish that can be covered without the cover resting upon them, as it has a tendency to make them heavy. A large tureen is the best dish to place pancakes into.

Another.—Have ready two cups; put one teaspoonful of tartaric acid in one cup, one teaspoonful of soda in the other cup; add to each about two tablespoonfuls of cold water; stir it well. Make one quart of buckwheat meal into a thick batter, with moderately warm water; add the contents of one of the cups; stir it well; then pour in the contents of the other cup; stir that well also; add to the whole one tablespoonful of melted butter, and bake on a griddle nicely cleaned and greased with good lard. The batter is ready for use as soon as mixed.

Another.—To every three bushels of buckwheat, add one of good heavy oats; grind them together as if they were only buckwheat; thus will you have cakes always light and always brown, to say nothing of the greater digestibility, and the lightening of spirits, which are equally certain. He who feeds on buckwheat may be grum and lethargic; while he of the oatmeal will have exhilaration of the brain and contentment of the spirit.

To Prevent and Remedy the Itching from Eating Buckwheat.—Solomon W. Jewett of California, writes to the *Country Gentleman*:—After eating too freely of them, it often causes a burning and itching sensation, produced by the poison in the grain. The best remedy to counteract this is carbonate of soda, to be used in their rising; or soon cured by taking internally, as the itching commences, a half teaspoonful or more of the soda diluted with water.

Wheat Flour Batter Cakes.—Mix a quart of milk into a very stiff batter. Mix into it a teaspoonful of salt, a quarter of a pound of soft butter, and a large spoonful of yeast. When it is well risen, mix into it six eggs beaten very perfectly. Indeed without the yeast and rising these are nice cakes. If not risen it is best to beat the yolks and whites of the eggs separately. Use soda if you choose. Buckwheat cakes are mixed as above, using a teacup of Indian meal with one quart of flour. Unbolted flour is to many tastes better than buckwheat.

Griddle Cakes.—The following is published in the *Agriculturist*: Unbolted wheat meal mixed with sweet milk so as to form a rather stiff batter, and baked a little longer than buckwheat, forms not only an excellent substitute, but is in some respects even superior to that article.

Potato Griddle Cake.—One quart of milk, six cold boiled potatoes grated, two eggs, and flour sufficient to make a batter.

Pancakes.—Beat four eggs very light; stir them with a little salt and a large spoon of melted butter, into a quart of milk, make of it a thin batter. Fry of the batter very large and thin cakes, a delicate brown. Send them to the table hot, to be eaten with molasses or sugar and butter.

Soap stone griddles are held to be superior to iron griddles for frying pancakes.

Omelet or Egg Pancake.—Two heaping tablespoonfuls of flour, a little salt, and just a pinch of soda, four eggs, and good sweet milk, enough to make a thin batter. The addition of a spoonful of cream, or a bit of butter, is nice, and a tart apple, paired and sliced very thinly, is an improvement. In frying, use a long handled pan, and when ready, take a tablespoon half full of lard, and half of butter, when hot, pour the batter in, enough of it to make it a little thicker than common buckwheat cakes. When it is a delicate brown on the under side, slip it into a plate, for, unless very dextrous with the knife, it will break in turning; put a few bits of butter and lard over it, and turn the pan quickly upon it, reverse and place over the fire, taking the

plate off, or it would be heavy. If baked in thin cakes with jelly between, it makes a nice dessert for dinner.

Pea Pancakes.—Cook a pint more green peas than you will require for dinner. While hot put them in a wooden bowl, a lump of butter and a little pepper with them, and mash to a *salve* with a potato pestle. In the morning make up a batter of either wheat flour or corn meal, with eggs and soda as for fritters. Stir in the pea jam until it is thoroughly incorporated with the batter, and cook like any other griddle cakes. They make a beautiful and palatable breakfast dish, as I know by experience.

Milk Toast.—Place the milk to heat, mix a teaspoonful of flour smoothly with the milk, stir it in, and let it come just to a boil, with a piece of butter the size of an egg to a quart of milk, and some salt. Place your toast in a deep dish, and cover it with this gravy.

German Toast.—Half a loaf of baker's bread, cut in slices and soaked in a custard made by mixing four eggs with a pint of cold milk—let it soak an hour. Fry the slices on the griddle, brown. To be eaten with a rich sauce.

Another.—Two eggs—one pint milk, and flour enough to make a thick batter—cut wheat bread into very thin slices, and soak them in sweetened water—cover each side successively with the batter and fry brown with lard. Eat while hot, with butter and white powdered brown sugar.

Welsh Rarebit.—Take a teaspoonful of mustard, half a cup of milk, and a little salt; put in a sauce pan, and add half a pound of mild cheese; put over a brisk fire and stir until the cheese and milk are thoroughly mixed. Pour on a slice of nicely toasted bread, and serve.

Breakfast Cakes.—Three eggs, three cups of wheat flour, three cups of unbolted flour, a little salt, one quart of milk, Bake quick. Some use sour cream and soda instead of sweet milk.

A Very Nice Breakfast or Tea Cake.—Half a cup of butter and one-fourth cup sugar stirred together. One cup of milk. Half a pint of flour. Two eggs. Two teaspoonfuls of cream tartar. One teaspoonful soda. A little salt.

Cookies.—One pound and a quarter of sugar, three-quarters of a pound of butter, one half a pint of warm water, four tablespoonfuls of carraway seed, one teaspoonful of soda dissolved in three of warm water, three pounds of flour. Roll out very thin, and bake in a very quick oven.

Another.—A lady at Mt. Morris, N. Y., contributes the following:

One cup of thick sour cream; one cup of sugar; half cup of butter; cinnamon to taste; soda as usual. My husband thinks they can't be beaten, so they must be good.

Another.—One cup of sugar; one of cream; teaspoonful of soda; salt, and spice or ginger.

Another.—One cup of butter, two cups of sugar, half pint of sour milk, one level teaspoonful of super-carbonate of soda, dissolved in half a wine glass full of warm water. Add nutmeg and cinnamon to your taste. Stir in flour, and treat dough as in recipe for jumble cake.

Sugar Cookies.—Three cups of sugar, two cups of butter, three eggs, four tablespoonfuls of sour cream, one teaspoonful saleratus.

Cookies—Extra.—Take one pound white sugar, one pint sour cream half an ounce hartshorn, mix very hard, and roll them. Some add a little salt and nutmeg.

Ginger Cookies.—Two eggs; two cups molasses; half a cup lard; half cup butter; one teaspoonful soda, dissolved in two tablespoonfuls of water; one tablespoonful ginger; flour enough to roll thin.

Another.—One cup sugar, one cup molasses, one cup butter or lard, one egg, one large teaspoonful soda, a tablespoonful ginger, and one tablespoonful of vinegar. Mix with seven teacups of flour.

Extra Ginger Cookies.—One teacup of molasses; half do. sugar; half do. of shortening; two-thirds do. of hot water; one teaspoon saleratus; one do of ginger; just flour enough to roll and *no more*.

Fried Cakes.—By Mrs. E. A. Call, Fabius, Onondaga Co., N. Y.—One teacup thick sour cream, two teacups of sour or buttermilk, two teaspoonfuls of soda, a teaspoonful of salt, and one teacup of sugar; mix well. Roll half an inch thick; cut in strips, twist and fry in hot lard until done; season with ground cinnamon or spice. The cakes will be the better for standing an hour or two, after they are mixed, before frying.

Crullers.—Two teacups sugar, two teacups sweet milk, two large tablespoonfuls of butter, two eggs, two large teaspoonfuls of soda, four do. of cream tartar, a teaspoonful of essence of lemon.

Another.—One cup of butter, two of sugar, one of milk, one teaspoonful of soda, three eggs, and flour sufficient to roll out with ease. Fry in plenty of good lard.

Another.—Two thirds of a cup of butter, two cups sugar, one cup sweet milk, four eggs, half teaspoonful soda—a little nutmeg and salt—enough flour to mix well.

Fancy Crullers.—Mix four eggs, one-fourth pound sugar, one-fourth

pound butter, one teacupful sweet milk, one teaspoonful soda, and two of cream tartar, the last two dissolved in as little water as possible; add sufficient flour to roll well. Shape by tying two knots and putting the ends through. This and the following are taken from the *Agriculturist*.

Corn Meal Crullers.—Beat four eggs light, and pour on them one quart of sour milk; (if sweet milk, cream of tartar must be used,) add half a teaspoonful of salt, and a small teaspoonful of soda; stir them all together, and then stir in sifted corn meal enough to make a very stiff batter. Have ready a frying pan half full of hot lard, into which drop the batter from a spoon; when nicely browned, turn them over, and when done, lay them on a colander to drain, and send to the table hot.

Doughnuts.—Two quarts of flour, half a teacup of butter, two cups of sugar, two teaspoonfuls of cream tartar, one teaspoonful of soda, two eggs, and enough sweet milk to mix well.

Another.—Take three pounds of flour, one pound of butter, a pound and a half of sugar; cut the butter fine into the flour; beat six eggs light and put them in; add two wine glasses of yeast, one pint of milk, some cinnamon, mace and nutmeg; make it up into a light dough, and put it to rise. When it is light enough, roll out the paste, cut it in small pieces, and boil them in lard.

Fritters.—Make a stiff batter of milk, eggs and wheat flour; drop a spoonful at a time, so as to form circular cakes, into a pan of hot lard, and fry until entirely brown. They should be light, crisp, and about an inch thick when done. Used with syrup, or butter and sugar melted together.

Another.—Beat ten eggs thoroughly, mix with two quarts cold water, one teaspoonful of salt. Add flour to make batter the thickness of griddle cakes; fry by the tablespoonful in fresh hot lard. Excellent, especially if eaten with maple molasses.

Apple Fritters.—Take one pint of milk, three eggs, salt just to taste, and as much flour as will make a batter. Beat the yolks and whites separately; add the yolks to the milk, stir in the whites with as much flour as will make a batter. Have ready some tender apples; peel them, cut them in slices round the apple, take the core carefully out of the center of each slice, and to every spoonful of batter lay in a slice of the apple, which must be cut very thin. Fry them in hot lard to a light brown on both sides.

Bread Cake.—Two cups of dough, one-half cup of sour milk, one-

half teaspoonful of soda, one cup of butter, two cups of sugar, four eggs, nutmeg, and a few raisins.

Another.—Three cups of dough, very light, three cups of sugar, one cup butter, three eggs, one nutmeg, a little soda, and raisins or not, just as you please.

Plain Cake.—Break two eggs into a cup; fill it up with cream; one cup of sugar, two of flour, a heaping teaspoonful of cream tartar, an even one of salaratus.

Another.—Four pounds of flour, two pounds of currants, and half a pound of butter, with clove, caraway, and coriander seeds to the taste, together with lemon-peel grated; wet it with milk and half a pint of yeast.

Another.—Nine pounds of flour, three pounds of sugar, three pounds of butter.

Gingerbread.—Two cups of molasses, one cup of melted butter, one egg, one cup of sweet milk, one teaspoonful of soda, one heaping teaspoonful of cream tartar, two tablespoonfuls of ginger, and flour enough to make a stiff batter. This should be baked with care, as it burns easily, and if burnt has a bitter taste.

Another.—One pound flour, half pound butter, mixed in half pound brown sugar, and as much treacle (not melted,) as will roll it into a paste; add ginger to taste; pour it thin upon tins, and bake in a quick oven.

Hard Gingerbread.—One cup butter, one cup brown sugar, one cup cold water, one cup molasses, one teaspoonful saleratus, or a little soda. Ginger to the taste, and flour enough to roll out easily.

Another.—Two pounds flour, one half pound butter, one pint molasses, one-fourth pound sugar, one ounce ginger, one-half teaspoonful of cream of tartar.

Another.—To a pint of West India or other molasses add the size of a hickory nut of butter, half teaspoon of pearlash, ginger to suit the taste. Warm the whole together, stirring well, add your flour, work and cut as biscuit.

Another.—Rub half a pound of butter into one pound of flour, then rub in half a pound of sugar, two tablespoonfuls of ginger, and one tablespoonful of rose water; work it well, roll out, and bake in flat pans in a moderate oven. It will take about half an hour to bake. This gingerbread can be kept some time.

Soft Gingerbread.—One and a half cups molasses, one and a half cups butter, one pint flour, two eggs, two tablespoonfuls milk, two

tablespoonfuls water; half teaspoonful saleratus; one tablespoonful ginger. Highly recommended.

Another.—One pint molasses, one cup butter, half cup milk, two eggs, one teaspoonful cream of tartar, two teaspoonfuls soda, one teaspoonful ginger, four cups flour.

Another.—One teacup molasses, one of butter, one of sugar, three eggs, half teaspoon pearlash. Add the flour as in making pound cake, beat the whole to a light batter, pour in pans, bake slow.

Another.—One cup of Molasses, one of sour cream, three cupfuls of flour, two eggs, one teaspoonful of soda, one of ginger.

Plain Gingerbread.—To a cup of molasses add a piece of butter the size of a large walnut, the butter being melted, put in one cup of sour milk, and a teaspoonful of soda. Spice with cloves or ginger; mix in enough flour to make a thick batter, and bake slowly.

Sugar Gingerbread.—One cup sugar, two-thirds cup of sour cream, two teaspoonfuls of cream tartar, one of saleratus, spice, a little cinnamon and nutmeg; bake in sheets an inch thick.

Sponge Gingerbread.—One pint of molasses; half pint sweet milk; three tablespoonfuls melted butter; one do. ginger; one do. saleratus. Make as stiff nearly as pound cake. This is highly recommended.

Another.—Melt a piece of butter the size of a hen's egg; mix with a pint of molasses, a tablespoonful of ginger and a quart of flour. Dissolve a heaping tablespoonful of saleratus in half a pint of milk, strain, and mix it with the rest of the ingredients; add sufficient flour to enable you to roll it out easily; roll half an inch thick, and bake it on flat tins in a quick oven. Gingerbread made in this manner will be light and spongy if baked quick, and made of nice molasses; but will not keep good so long as hard gingerbread.

Lemon Gingerbread.—Grate the rind of two or three lemons, and add the juice to a glass of brandy; then mix the grated lemon in one pound of flour, make a hole in the flour, pour in half a pound of treacle, half a pound of butter melted, the lemon juice and brandy, and mix all up together with half an ounce of ground ginger, and quarter of an ounce of cayenne pepper.

Imperial Gingerbread.—Rub six ounces of butter into three-quarters of a pound of flour; then mix six ounces of treacle with a pint of cream carefully lest it should turn the cream; mix in a quarter of a pound of double refined sugar, half an ounce of powdered ginger and one ounce of caraway seeds; stir the whole well together into a paste, cut it into shapes, and stick cut candied orange or lemon peel on the top.

Dinah's Gingerbread.—Two cupfuls of molasses, two cupfuls of water or sour milk, half a cupful of brown sugar, one tablespoonful of ginger, one do. of melted butter, and one and a half teaspoonfuls of saleratus; add a little salt; not very stiff; bake in two large cakes.

While stopping a few days at Saratoga, last summer, the excellent gingerbread on the table attracted general notice. I made my way to the kitchen, and learned from Dinah, the cook, her process of making it; and for want of another name, we call it "*Dinah's Gingerbread.*" Carrot coffee I drank in New Hampshire, and like it well. It is said to be very good for those subject to bilious difficulties.

Another Good Gingerbread.—One and one-half cups of molasses; one teacup of cream; one do. of buttermilk; two eggs; one and a half teaspoonfuls saleratus; two do. of ginger, four small teacups of flour. Beat thoroughly and spread on two baking tins.

Ginger Biscuits.—Rub half a pound of fresh butter into two pounds of fine flour, add half a pound of sifted sugar, and three ounces of pounded ginger. Beat up the yolks of three eggs, and take a little milk, with which make the above ingredients into a paste. Knead it all well together, and roll it out extremely thin, and cut it into the form of round biscuits with a paste cutter. Bake them in a slow oven until crisp, taking care that they are a pale brown color.

Ginger Cakes.—One pint of molasses. One cup of butter. One tablespoonful of saleratus. One teaspoonful of alum, each to be dissolved in a cup half full of boiling water. One tablespoonful of ginger, and flour enough to roll out in little cakes.

Ginger Pound Cake.—Eight eggs, one pint of molasses, one pound of brown sugar, half pound butter. Beat the eggs, stir into it the molasses, sugar and butter, also one tablespoon of powdered allspice, and two of ground ginger. Thicken with as much flour as will make a rather stiff batter, three pints, we think; just before putting in the mould, stir in a teaspoon of soda dissolved in a little sour milk. Omit four eggs, and work in flour enough to make it roll, and you have good plain ginger cakes.

Ginger Sponge Cake.—One cup of molasses, one cup of butter, two cups of sugar, four eggs, three cups of flour, one cup of milk, soda, and ginger.

Soft Ginger Cake.—Mix one cup of sugar, one of molasses, one egg, butter the size of a walnut, one cup cream (milk or buttermilk will do,) four cups flour, ginger to taste, and a small teaspoonful of soda. It bakes quickly in iron pans.

Scalded Ginger Cake.—Put one pint of molasses and two spoonfuls

of butter in a pan, heat to boiling, then pour it on to one quart of flour. Stir it well and when cool add two eggs well beaten, one tablespoonful of soda dissolved in two large spoonfuls of brandy, and one of ginger. Add enough flour to make it thick enough to roll; work it out thin, and bake in square tins. This and the next preceding is extracted from the *American Agriculturist*.

Ginger or Cinnamon Tablet.—Melt one pound of loaf sugar or sugar candy, with a little water over the fire, and put in one ounce of powdered ginger or cinnamon, and keep stirring it until it begins to rise into a froth; then pour it into a dish which has been first rubbed with a little butter; before it hardens cut it into the size and shape you approve of for table.

Ginger Lozenges.—Mix with white of eggs, four ounces of powdered ginger, two pounds of white sugar, and one pound of starch.

GINGER SNAPS.

Of all the cakes one loves to eat, perhaps
None charms the palate like good ginger snaps,
And if to make the best you'd wish to know,
Why, study well the rhymes you find below :
Melt of butter half a pound, also of lard,
Then add sugar, brown, a half a pound,
Stir in a quart of 'lasses, not too hard,
Four tablespoons of ginger, nicely ground.
Into this mixture sift two quarts of flour,
(Then to insure the cakes shall not be sour,)
Dissolve in milk four teaspoonfuls of soda ;
Saleratus is advised, but I like not the odor ;
Mix either with milk ; it surely makes no matter,
So that you strain the milk into the batter :
Add more flour, and roll out thin the dough,
Then cut in cakes, but this you surely know.
Bake them well in an oven, cooks call "slow,"
And when they're baked they'll not last long, I know.

Another.—Two cups molasses, one cup lard, one teaspoonful salt, one teaspoonful ginger, three teaspoonfuls soda. Let these ingredients come to a boil; then add flour until stiff enough to roll out. Roll out very thin, and bake in a quick oven.

Another.—One cup of butter, one cup of lard, one cup of sugar, two cups molasses, one small teaspoonful saleratus, one do. of ginger. They require considerable flour. Roll them out very thin, and bake quickly.

Another.—Take two-thirds of a pint of molasses, and fill the pint

up with sugar; half a pint of lard and half a pint of buttermilk; one tablespoonful of ginger, a teaspoonful of soda, flour to stiffen. Roll them and bake quickly.

Premium Ginger Snaps.—One cup best molasses; one-half cup sugar; two-thirds cup butter; one teaspoonful alum; two teaspoonfuls saleratus; one-half cup water; one tablespoonful ginger.

London Snaps.—One pound flour, four ounces butter, one cupful common sugar, half pint molasses, one-third cupful, with a little saleratus.

Cake Without Eggs.—Pour sufficient boiling water over stale bread to soften it; mash it through a colander, and add as much wheat flour as bread, and as much milk as will make it as thick as batter usually is; one teaspoonful soda; two of cream tartar. Bake immediately.

Cake With or Without Eggs.—One cup of butter, two cups of sugar, one cup of sweet milk, half cup of sour milk, or buttermilk, one teaspoonful of saleratus, flour to make it thick, and fruit if you choose.

Economy Cakes.—By a correspondent of the *Am. Agriculturist*: Take one quart of mashed potatoes, one egg, half teacup of wheat flour, a tablespoonful of butter, and add milk to form a thick batter. Season with pepper and salt. Mix all well together: make into cakes three-fourths of an inch thick, and fry brown where meat was previously fried. They are recommended.

Diet Cake.—One tablespoonful of butter, two of eggs, one and a half cups of sugar, one of milk, three of flour, one teaspoonful of soda, two of cream tartar. Flavor with essence of lemon.

Indian Queen Cake.—Take three cups of sifted meal, one handful of flour, half cup of molasses, one egg and half a tablespoonful of butter, mix thoroughly and stir into a quart of sweet milk till a batter is made of the right thickness; add a teaspoon of soda and a little salt.

Cheap Cake.—One half cup of sour cream; one cup of sugar; one of buttermilk; a heaping teaspoon of soda; half teaspoonful of cream tartar. Flavor with nutmeg or cinnamon, and put in a little salt.

Tea Cakes.—Beat four eggs well, stir in it four teacups of sugar, one of butter, a tablespoon of essence of lemon; dissolve a teaspoon of soda in a little sour cream, and grate in a nutmeg.—Work flour in until the dough will barely roll without sticking. Cut out and bake a light brown. If cut with a large cutter, and when fresh baked, rubbed with white of an egg, and sugar sifted over, they are termed sugar cakes. The sugaring should be done while perfectly hot.

Another.—Mix thoroughly a teacupful and a half of sugar, half a

teacup of butter, and half of a nutmeg. Dissolve a teaspoonful of saleratus in a teacupful of milk, strain and mix it with the cakes. Add flour until stiff enough to roll it out about an inch thick; cut in cakes. Bake them on flat rubbed tins in a quick oven.

Coffee Cake.—One cup of sugar, one do. molasses, one do. of butter, one do. raisins, chopped fine, one do. lukewarm coffee, with a teaspoonful of soda in it, one egg, cinnamon, and nutmeg. Flour to your judgment.

Another.—One coffeecup of sugar, one do. molasses, one do. strong coffee, two-thirds of a cup. of butter, two eggs, and four cups flour, one teaspoon saleratus. Spice with cloves and cinnamon. Add raisins if you choose. The coffee must be prepared as for the table.

Squash Cake.—One quart boiled mashed squash, one coffeecup sweet or sour milk, or buttermilk, one coffeecup flour, three eggs, salt and saleratus if sour milk or buttermilk is used. Fry in butter or lard. If the mixture is poured over sliced apples in the spider it is an addition.

Citron Cake.—Two and a half cups sugar, three eggs, one cup sweet milk, a piece of butter the size of a hen's egg, a teaspoonful of cream tartar, one of soda, a little over two cups of flour. Place in a baking dish with layers of citron. A very good cake without, however.

Lemon Cake.—One cup of butter, three of sugar, one of milk, four of flour, five eggs, a teaspoon of soda, juice and grated peel of one lemon.

Cocoanut Cake.—Three cups white sugar, half cup butter, three and a half cups flour, one cup milk, the whites of six eggs, one teaspoonful extract of vanilla, one teaspoonful salt, one teaspoonful soda, two teaspoonfuls cream tartar, one grated nut.

Another.—Scarcely half a pound of pounded sugar to a large cocoanut, grated. Put into a preserving pan till the sugar melts. Form into cakes, put on white paper. They should be well baked in a very cool oven, and when cooked ought to be pure white.

Currant Cakes.—One cup of butter, three eggs, one cup of water or milk, half a teaspoonful of saleratus, nutmeg, cup of currants.

Rice Cakes.—Having boiled some rice flour into a stiff mush, mix by receipt for Indian batter cakes, with a spoonful of wheat flour mixed in to bind it. You may use one-half of soft boiled rice in preparing griddle cakes, by the receipt given for wheaten or Indian batter cakes, and find them quite as good as those prepared of rice flour.

Ground Rice Cake.—Break five eggs into a stew pan, which place in another containing hot water; whip the eggs for ten minutes till very light, then mix in by degrees half a pound of ground rice, six ounces of powdered sugar; beat it well; any flavor may be introduced; pour into the buttered pan and bake half an hour.

Seed Cake.—Beat one pound of butter to a cream, adding gradually a quarter of a pound of sifted sugar, beating both together; have ready the yolks of eighteen eggs, and the whites of ten, beaten separately; mix in the whites first, and then the yolks, and beat the whole for ten minutes; add two grated nutmegs, one pound and a half of flour, and mix them very gradually with the other ingredients. When the oven is ready, beat in three ounces of picked caraway seed.

Corn Starch Cake.—By a correspondent of the *American Agriculturist*: Mix one egg, two cups of flour, one cup of milk, one cup of sugar, one teaspoonful of soda, two of cream tartar, piece of butter half the size of a hen's egg, melted; bake the same as for jelly cake, in shallow tins, and when cold pile in layers, with a custard between, made as follows: Take one egg, one cup of milk, sugar to taste, two spoonfuls of vanilla extract, one teaspoonful of corn starch. Boil the milk, beat the egg and corn starch together, and stir into the boiling milk, which must previously be sweetened. When cold, stir in the vanilla. The custard must cool before being put with the cake.

Cream of Tartar Cake.—Half cup butter, two cups sugar, three and a half cups flour, three eggs, two teaspoons cream of tartar, one teaspoonful soda, dissolved in one teacupful milk, one tablespoonful flavoring. Stir together quickly, and bake in a quick oven.

Another.—One cup of butter, two of sugar, five of flour, three eggs, one cup of sweet milk, three teaspoons cream of tartar, one and a half of soda, nutmeg. (Two cups of chopped raisins if you like.) Rub well the cream of tartar in the flour, stir sugar and butter together, then eggs, then milk, with the soda well dissolved in it.

Jelly Cake.—One pound sugar, one of butter, three-quarters of a pound of flour, and twelve eggs. Mix as other cakes, and bake in plates. While fresh, spread between layers of marmalade or jelly, and lay up in a pile; trim evenly, and ice or sift sugar thickly over them.

Another.—Three cups white sugar, one cup butter, one cup milk, four cups flour, six eggs, well beaten, a little spice. Drop three tablespoonfuls in an ordinary sized cake pan.

Another.—From *Am. Agriculturist*: Take one cup of sugar,

four eggs, one cup of flour, half teaspoonful soda, dissolved in a tablespoonful of sweet milk, and one teaspoonful cream of tartar, mixed in flour. Bake in one long tin, then spread with jelly, roll up, and cut in slices,

"An Excellent Cake."—Take one cup of butter and three of sugar, well rubbed together; then take five eggs which have been beaten very light, and stir them by successive portions into the above mixture, adding also four cups of flour and a cup of sweet milk. Add nutmeg and a wine glass of rose water, and also add a teaspoonful of solution of soda. Baking about fifteen minutes in a moderately hot oven will be sufficient.

Scotch Cakes.—From the *Am. Agriculturist*: Mix one pound brown sugar, half pound butter, one pound flour, two eggs, one ounce cinnamon, and a little soda. Roll them out as thick as jumbles.

Washington Cake.—From *Godey's Lady's Book*: Beat together one and a half pound of sugar, and three-quarters of a pound of butter; add four eggs, well beaten, half a pint of sour milk, and one teaspoonful of saleratus, dissolved in a little hot water. Stir in gradually one and three-quarters pound of flour, one wineglassful of wine or brandy, and one nutmeg, grated. Beat all well together. This will make two round cakes. It should be baked in a quick oven, and will take from fifteen to thirty minutes, according to the thickness of the cakes.

Lincoln Cake.—Take one pint of light dough, half a teacupful of butter, a teacupful of sugar, three eggs, a teaspoonful of saleratus, one pound of raisins. Roll and bake.

Douglas Cake.—Take four pounds of flour, two pounds of white sugar, one pound of butter, ten eggs, the juice and pulp of one orange, half teaspoonful of soda; roll out thin.

Composition Cake.—One pound and a half of sugar, one pound and a quarter of butter, one pound and three-quarters of flour, one cup of milk, one teaspoonful of soda, six eggs, one wineglass of brandy, fruit to your taste.

Another.—One pound of flour, one pound of sugar, seven eggs, and a gill of brandy.

Jew's Cake.—Beat four eggs light; stir in it one pound sugar and one pound of butter, a grated nutmeg, and a teaspoon of soda, dissolved in a little milk. Work in as much flour as will make it roll; cut out thin and bake quick.

Schroeder's Cakes.—One pound and a half of sugar, ten eggs, one teaspoonful of pearlash, and cinnamon to your taste.

Madison Cake.—Mix one pound of butter, two pounds sugar, two pounds flour, one pound of raisins, one pound of currants, one pint of cream, seven eggs, one teaspoonful cinnamon, one nutmeg, twenty-five drops oil of lemon, one teaspoonful soda, two cream of tartar. From the *American Agriculturist*.

Macaroons.—These little cakes are much admired, and are a very agreeable addition to the dessert. To a quarter of a pound of sweet almonds, take four teaspoonfuls of orange-flower water, the whites of six eggs, and one pound of sifted white sugar. Blanch the almonds, (remove the brown skin,) and pound them with the orange-flower water, or some of the white of an egg; then whisk the whites of the eggs and add them gently to the almonds. It is important that these two ingredients should be carefully added, or they will "oil," or separate. Sift the sugar into the mixture until the whole form a paste, not too stiff to drop upon white paper, which should be placed in a tin, or on a plate, and the whole baked in a slow oven till done.

Marble Cake.—From the *Am. Agriculturist*: For the white part, mix one cup of butter, three of white sugar, one of sweet milk, five of flour, half a teaspoonful of soda, one of cream tartar, whites of eight eggs, and flavor with lemon extract. For the colored part, take one cup of butter, three of brown sugar, one of molasses, one of sweet milk, four of flour, one teaspoonful of soda, and two of cream of tartar, the yolks of eight eggs, and one whole egg; season with cinnamon, nutmeg, and cloves. This alone makes a good spice cake. To make the marble cake, first put in a pan a layer of the spice cake, then of the white, and so on until the loaf is complete, finishing with the spice cake. The above quantity will make two loaves in six quart pans.

Molasses Cake.—One gallon of molasses, one quart of sour milk, a quarter of a pound of saleratus, and one pound of lard with sufficient flour.

Molasses Pound Cake.—One pound of flour, one pint of molasses, quarter pound of sugar, six ounces butter, six eggs, a small quantity of pearlash, five drops essence of lemon.

Mountain Cake.—One pound sugar, one pound flour, half a pound butter, six eggs, one teaspoonful cream of tartar, half a teaspoonful soda, one cup sweet milk.

White Mountain Cake.—One pound of flour, one pound white sugar, half pound butter, six eggs, one teacup sweet milk, one small teaspoonful of saleratus dissolved in the milk, two teaspoonfuls cream

of tartar mixed with the flour. Bake in jelly-cake or Washington pie-tins, four in number.

Frosting.—One sheet Cooper's izinglass dissolved in a *small* teacup of boiling water. Stir into it two pounds of pulverized white sugar. Flavor it with lemon, vanilla, or almond, (and put a tablespoonful of the same flavoring you use for the frosting into the cake before baking.) When the cakes are baked, put one upon a plate; frost the top and side over; then lay on another, evening off the edges with a knife; frost that in the same manner, and so on till all are done, and the "White Mountain" is finished. It is an excellent ornament for a supper table, and a handsome dessert for dinner. It is a French cake and called "Mont Blanc."

This way of making frosting is good for all kinds of cake.

Measure Cake.—*Highly Recommended.*—One cup of butter, two of sugar, three eggs, one-half a teaspoonful of soda in a cup of milk, one teaspoonful of cream tartar, and five cups of flour. Stir the butter and to a cream, add the eggs, the whites and yolks beaten separately; then the soda and milk, and lastly the cream tartar and flour. Flavor as you please. Bake in small tins or in a loaf.

Number Cake.—From the *Am. Agriculturist*: One cup butter, two of sugar, and three eggs. Beat the eggs and sugar together, then add one grated nutmeg and one teaspoonful of saleratus. Stiffen with sufficient flour, roll them, cut in rounds, and bake in a quick oven.

Puff Cake.—From the *Am. Agriculturist*: Take two cups of white sugar, three eggs, one scant cup of butter, one cup of sweet milk, one teaspoonful of saleratus, two of cream tartar, three cups of flour. Flavor to taste. Stir together at once.

Pound Cake.—Beat ten eggs light, whites and yolks separate. Then add to it one pound best powdered sugar. Rub to a cream a light pound of butter and one pound best flour. Mix all together. A Dutch oven is the best after a baker's oven. The strongest heat should be at the bottom, but moderate at first to allow the cake to rise. Baking is the part of cake making that requires most skill. Sound your cake; if done it will give back an audible sound. It will also be elastic. Stick a straw in the thickest part; if it comes out clean, you may conclude it done. Long baking makes dark cake.

Another Good Pound Cake.—Beat one pound of butter to a cream, and mix with it the whites and yolks of eight eggs beaten apart. Have ready, warm by the fire, one pound of flour, and the same of sifted sugar; mix them and a few cloves, a little nutmeg and cinna-

mon, in fine powder together; then by degrees work the dry ingredients into the butter and eggs. When well beaten, add a glass of wine and some caraways. It must be beaten a full hour. Butter a pan, and bake it an hour in a quick oven.

Pop Overs.—Three cups flour, three eggs, three cups milk, a small piece butter, and a half teaspoonful of salt. Bake in cups.

Soda Cake.—Two coffee cups sugar, one do. butter, one do. sweet milk, four do. flour, six eggs, two teaspoonfuls cream tartar, two do. soda; nutmeg and salt.

Shrewsbury Cake.—One pound of flour, three-quarters of a pound of sugar, three of butter, four eggs; beat till very light; bake moderately.

Jumble Cake.—Two cups of sugar, one cup of butter, three eggs, one (level) teaspoonful of saleratus; flavor with nutmeg to your taste. Stir in sifted flour until the dough can be rolled with rolling pin, (the softer the dough is the better,) then roll, stamp out in small cakes, sprinkle sugar lightly over them while in the pans. Bake quickly.

Jumbles.—One cup butter. Two cups sugar. Three eggs. A small piece of soda dissolved in three tablespoonfuls of water. Sprinkle white sugar on them before being placed in the oven.

Another.—One pound of butter, one pound of sugar, four eggs, one pound and a quarter of flour, half a gill of rose water. Beat the butter and sugar to a cream, whisk the eggs and add them to the butter and sugar, then the rose water; lastly, stir the flour lightly through the other ingredients, roll into round slips the thickness of your little finger. Form it into rings the size of half a dollar. Place them on tins about an inch apart, and bake them in a moderate oven. When cold, sift sugar over them.

Another.—Half a pound of sugar. Half a pound of butter. Half a pound of flour. Flavor with cinnamon.

Wafer Jumbles.—Three-quarters of a pound sugar. One-quarter pound butter. Three eggs. One-half teaspoonful soda. One teaspoonful essence lemon. Flour enough to roll out. Roll very thin, bake in a quick oven.

Cup Cake.—Take two cups full of milk or cream, two of sugar, two of flour, one of rice flour, and one teaspoonful of salt. Put into cups and bake full.

Another.—Five eggs, four cups flour, three of sugar, one of sour cream, and half a cup butter. Mix up like cake. Dissolve one teaspoonful soda in the milk. This cake makes a good plain dessert with

wine and butter sauce, or with powdered sugar and butter, rubbed to a cream, and seasoned with wine, sugar and lemon.

Another.—Three eggs, two cups sugar, one cup milk, one cup butter, and three cups flour.

Ohio Cup Cake.—Five cups flour; five eggs; one cup of butter; three cups of sugar; one teaspoonful saleratus; one cup of sour cream, and one nutmeg.

Strawberry Cup Cake.—Have from six to ten rings, three inches in diameter, two deep, and slightly flaring, soldered at the small end, in two rows, to a sheet of good strong tin. Fill these rings two-thirds full of any of the nice cake material you prefer for the tea table, and set it in a moderately hot oven to bake. While the baking is progressing, pick over and hull a quart of the finest strawberries you can get. Then whip to a froth the whites of three eggs, and thicken with white powdered sugar until you can spread it smoothly with a knife without its running. When the cake is done to a bright brown, remove them from the oven, spread over the top of them the egg icing an eighth of an inch thick, and set in it, so that they nearly touch each other, the finest of the strawberries, the large end down. Return the form to the oven for ten minutes, and the cakes are ready for the table. They are ornamental and very nice to eat.

Premium Molasses Cup Cake.—Two cups of molasses; two cups of butter; three eggs; one-third cup cold water; one tablespoonful soda, and bake.

Rice Cups.—From Mrs. Jane Gillet, Prattsburgh, N. Y. Boil rice in water till nearly done, then add milk and a little salt. When cooked soft, add a little butter and sugar, and mold in cups. When cold, put in a custard made of the yolks of eggs and milk, in the proportion of four yolks to a quart of milk steamed over a dish of boiling water. The custard must be stirred almost constantly while cooking. Season it with lemon or cinnamon.

Snow Cakes.—Put corn meal into a good sized wood or other bowl, with sugar and salt to the taste; then add twice or three times its bulk of snow, and stir together with a spoon. When well mixed it appears like so much dry meal or snow; if too wet to be light, add more meal; when just right, fry on the griddle in convenient sized cakes, and they will be as light as can be desired.

Snow Ball Cake.—By a correspondent of the *Am. Agriculturist*: One cup of white sugar, half cup of butter, the whites of five eggs, one teaspoonful of soda, and a little nutmeg; add flour enough to make a stiff batter; bake in patty tins.

Honey Cake.—One cup of nice sugar, one cup of rich sour cream, one egg, half a teaspoonful of soda, two cups of flour. Flavor to the taste. Bake half an hour. To be eaten while warm.

Sponge Cake.—1.—One egg, (beat the white separately to a froth,) one cup of sugar, one cup of milk, one and two-thirds cup of flour, one tablespoonful of butter, two teaspoonfuls of cream tartar, one teaspoonful of soda; season with lemon extract or nutmeg.

2.—Three eggs, one cup of sugar, one cup and a half of flour, one teaspoonful cream of tartar, half teaspoonful saleratus, nutmeg and lemon.

3.—Three eggs, one cup sugar, one cup of flour, three tablespoonfuls of cream, two teaspoonfuls cream of tartar, half teaspoonful soda and nutmeg. While warm spread with jelly, cut it in slices, and roll them quick as possible.

4.—Two cups sugar, one cup milk, two eggs, three teaspoonfuls cream of tartar, one of soda, butter size of an egg.

5.—Beat ten eggs thoroughly. Stir in and beat hard one pound of best powdered sugar—then three-quarters of a pound of flour. Bake in little tins or a loaf.

6.—One pound and a half of sugar, three-fourths of a pound flour, thirteen eggs, one lemon.

7.—Eleven eggs, the weight of eleven in sugar, and the weight of six in flour, and the rind (grated) and juice of one lemon.

8.—One coffee cup of flour, one do. sugar, one teaspoonful cream of tartar, one-fourth do. saleratus, dissolved in one teaspoonful of hot water. Particularly recommended.

9.—One tumbler of white coffee sugar, one do. of flour, three eggs. Stir the mixture thoroughly, bake fifteen minutes, and you have a good cake.

Berwick Sponge Cake.—Beat six eggs two minutes, add three cups sugar, beat five minutes; two cups flour with two very small teaspoonfuls cream of tartar, beat one minute; half the rind and juice of a lemon, two cups flour, a bit of salt. Bake twenty minutes.

Mock Sponge Cake.—One-quarter of a pound of butter, one of sugar, three eggs, one-half a pint of milk, one even teaspoonful of soda, three coffee cups of flour, one heaping teaspoonful of cream tartar, a little salt, and essence of lemon. This will make two loaves. Bake in a quick but not too hot oven.

"Best Sponge Cake."—One coffee cup of sugar and four eggs beaten to a cream; add a piece of soda the size of a pea dissolved in a tea-

spoonful of milk, also a little nutmeg and essence of lemon, stir in quickly a coffeecup of flour. Bake in a hot oven.

Barnard Cake.—Three eggs, two cups and a half powdered sugar, one cup butter, one cup sour milk, rind and juice of one lemon, three and three-fourths cups flour, one even teaspoonful soda, *last*. Sugar sifted over the top *after it is put into the pan*.

Wingate Cake.—Three eggs, two cups powdered sugar, half cup butter, three cups flour, one cup new milk, one teaspoonful soda, two of cream tartar.

Plain Cheese Cake.—By Soyer: Put half a pint of milk curds, well drained, in a basin, add to it an ounce and a half of butter, stir perfectly smooth; put in three teaspoonfuls of sugar, one ounce of washed currants, one egg, half a pint of milk, and any flavor you may like, as lemon, orange, &c. &c. Prepare your paste, fill up with this, bake the same, and serve.

Perpetual Lemon Cheese-cake.—One pound of loaf sugar, six eggs, leaving out the whites of two, the juice of three fine lemons, and the grated rind of two of them, one-quarter pound of fresh butter. Put these ingredients into a pan, boil them gently over a slow fire until they assume the consistency of honey; pour into small jars, and tie brandied papers over them. A dessertspoonful is sufficient for each cake. This should be made when eggs and lemons are plentiful, as it will keep two years.

Nut Cakes without Yeast.—One cup butter, one cup sour milk, two cups sugar, four eggs, a teaspoonful of saleratus, more or less, according to the sourness of the milk, spice as wanted, and flour enough to roll out like jumbles. Cut them in any shape desired, and fry in boiling lard.

French Loaf Cake.—One pound flour, three-fourths do. brown sugar, half do. butter, four eggs, one wineglass of sweet cream, one do. wine, one teaspoonful soda, one pound of raisins, one do. currants, half do. citron, spice to suit the taste.

Light Cakes.—To three-quarters of a pound of fine flour, add half a pint lukewarm milk; mix in three spoonfuls of light barm; cover it over, and set it by the fire for half an hour to rise. Work in the paste four ounces of sugar and the same quantity of butter. Make into tea cakes with as little flour as possible, and bake them in a quick oven.

Lady Cake.—Half a pound sugar, six ounces flour, three ounces butter, whites of five to seven eggs, well beaten, and flavored with extract of bitter almond.

Lady Finger.—To one pint of molasses, one pound of sugar, half a pound of butter, half an ounce of saleratus, dissolved in a half pint of sour milk, a handful of ginger, and two eggs.

Delicate Cake.—One coffeecup of flour, one of sugar, one teacup of butter, one tablespoonful of cream, the whites of four eggs, flavor to taste. This makes one loaf.

Cinnamon Wafers.—From the *Am. Agriculturist*: One pound of sugar, one-fourth pound butter, three eggs, half teaspoonful soda, one tablespoonful of cinnamon, and flour enough to roll out; to be made the same as ginger snaps.

Bachelor Buttons.—These delicious little cakes are prepared by rubbing two ounces of butter into five ounces of flour; add five ounces of white sugar; beat an egg with half the sugar, then put it to the other ingredients; add almond, flavoring according to taste. Roll them in the hand about the size of a large nut, sprinkle them with white sugar, and place them on tins with buttered paper. They should be slightly baked.

Drop Cakes.—One quart of flour, two eggs, half a cup of butter, half a cup of sugar, one teaspoonful of soda, two teaspoonfuls of cream of tartar. Stir butter and sugar together, add the eggs, put the cream of tartar into the flour, dissolve the soda in a little milk, pour in milk enough to make as stiff as pound cake. Put in the soda the last thing. Bake in cups or muffin rings set on tin sheet.

Water Drop Cake for Dyspeptics.—One pint of water, one egg, one spoonful of salt, not quite a pint of flour. Beat together thoroughly, and put it into the oven without a moment's delay.

Rye Drop Cakes.—One pint of milk, three eggs, one tablespoonful of sugar, and a little salt. Stir in rye flour till about the consistence of pancakes. Bake in buttered cups or saucers half an hour.

Egg Drops.—Take one quart corn meal; pour a sufficient quantity of boiling water over it to make a thick batter, then add one tablespoonful of lard, salt to suit the taste, and three eggs. Then stir up well, and drop a tablespoonful in separate places on a griddle or spider, previously warmed, and let them cook brown. Excellent.

Rout Drops.—Mix two pounds of flour, one pound of butter, one pound of sugar, one pound of currants, clean and dry; then wet into a stiff paste with two eggs, a large spoonful of orange-flower water, sweet wine and brandy; drop on a tin plate, floured. A very short time bakes them.

Chocolate Drops.—Reduce two ounces of chocolate to fine powder by scraping, and add it to one and a half or two pounds of powdered su-

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"Yes, of course," they answered, and you were a chief, and you had a son you thought had some business for being a medicine man, you sent for the medicine men, and they come and had a contest about it, and had out if the boy has any medicine."

"Any familiar spirit?"
"Yes. And if they and he has, they teach him a little at a time. He has to commence small. His medicine at first is probably some small kind of little animal. Then he gets going farther, until maybe he reaches the owl," (pointing to a large owl perched on the owl kind that stood near), "and when he comes that far, he is wise. If I was a medicine man I would be wise, for I could see if it was an owl, and see in the dark, as the owl can. The owl poison or"

BIG MEDICINE IS THE RATTLESNAKE.
That is the greatest and the wisest of them all. If it is a girl that wishes to become a medicine woman, she is taken when her first menstruation occurs, and put in a dark tepee and kept there five days. No one can see her. Food is put into the tepee for her, and she is left quite alone with the spirits. Then, on the fifth day, the big medicine man goes in and mesmerizes her, and she becomes stiff and hard as a figure of stone, and remains so until the big medicine man releases her. When she comes too again, she has medicine. She is a medicine woman. Sometimes they have

MEDICINE DANCES.
to see who is the greatest. Maybe it is the big medicine man that give it, maybe it is a chief, who says, "Come, now, let us see who is the most skillful among you." Whoever it is pays all the expenses and feeds the people while it lasts—probably five days. The Indians come in from great distances. A platform is built on pieces of wood that spring up and down, and over the platform is brown buffalo skin. Then the chief or whoever it is, at last, the feast says, "Now, who is the medicine man?" Come, let us see. The medicine men always allow the oldest to go first. He inches up on the platform, and begins to spring it up and down and sing; and all the people follow his motions with their hands, and sing too. By and by his medicine comes, and he speaks wisdom. Then he goes down, and the chief repeats the mystification. Suppose there is some young fellow in the crowd who can do some little tricks, and has some medicine, and he wants to show what he can do. He sings out, "Well, I can do these things like him," and he jumps upon the platform and begins to spring it up and down and sing, while the people keep time and sing as before. The other medicine men don't like this. They say among themselves, "Who is this young fellow that puts himself forward before the medicine men? We will teach him a lesson," so they close their eyes, and they say they

SEE HIS MEDICINE COMING.
they tell what it is—maybe a buffalo. They tell what divide it is coming down, and what it is like, and when it is coming nearer, and nearer, until one cries out, "Here it is," and catches it, and all the medicine men pounce upon it, and throw it down. Then the young fellow cannot have his medicine. They hold it, and he knows they have been too smart for him. He falls down upon the platform, and begs, "Here, I have many horses and so many cattle, and so on. Take it all, only let me live." That is enough. The medicine men have got his property and they let him go.

"These proceedings are not unlike some that the media go through—I mean in general, not with regard to the fleeing of an aspirant," suggested the spirit student. "And I dare say the white spiritists would endorse them, so far as they go, with the explanation that as the Indians are consoled by the lower animals, the manifestations are necessarily base and of an inferior order."

"My brother, Dr. McKay, who was educated and practices medicine in a New England city," pursued Mr. McKay, "was out to visit us a year or two ago, and I remember his making a speech to our people, which I interpreted, in which he

CALLED THEM FOOLS.
for listening to, much less believing in, such nonsense. We called to see him a few weeks ago, and while we were at his house there came a very nice-looking lady, who said she wanted to see the Indians. We were shown to her; and then she said she was a medium, and that she had received a communication from her controlling spirit, directing her to call upon us and transmit a message. The Indians, when I explained it to them, at once formed about her as they do about their medicine men at home, and began to sing. In a moment she went into a trance, and began to speak in the Indian tongue. I paid little attention to it, for, as I told you, I don't understand such things, and don't like to meddle with them; but the Indians told me that she gave them a message from an old chief who long since passed away. I had a laugh at my brother about it. 'You called us ignorant fools for believing in such things out in the west,' said I, 'and yet when I come east among the enlightened white folks I find them going on just the same.' He hadn't a word to say."

The conversation drifted off hereabout to
GENERAL INDIAN FOLKS,
and lasted until 3 o'clock in the morning. Donald McKay told a great many things of interest about the Indians and the Modoc war, but most of them had found their way into print long since. He has a high opinion of Gen. Crook. "I tell you, gentlemen," said he, "if Gen. Crook were not a general of the army, he would be the greatest of soldiers. I never saw a more thorough frontiersman. You people at the east don't half appreciate him. I, who am largely Indian and whose life has been spent in the wilds, know what he is."

MR. MARCY'S WHIST.
Mr. Labouchere, the well-known English capitalist and member of parliament, tells the following story of the late secretary Marcy:
"Years ago I was in America, and went with the English minister to a small inn in Virginia, where we were to meet Mr. Marcy, then United States secretary of state, and a reciprocity treaty between Canada and the United States was to be quietly discussed. Mr. Marcy, the most genial of men, was as cross as a bear. He would agree to nothing. 'What on earth is the matter with your chief?' I said to a secretary who accompanied him. 'He does not have a rubber of whist,' answered the secretary. After this every night the minister and I played at whist with Mr. Marcy and his secretary, and every night we lost. The stakes were very trifling, but Mr. Marcy felt flattered by beating the Britishers at what he called their own game. His good humor returned, and every morning when the details of the treaty were being discussed we had our revenge, and scored a few points for Canada."

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The St. Paul Pioneer Press of Thursday says: "The crop prospects are reported excellent over Minnesota, and the farmers are in good spirits, in spite of the imminent danger from 'bugs' in a number of the best wheat-growing counties."

We have received from Dr. B. R. Stone, Elgin, Ill., a copy of the eleventh annual report of the Northwestern Dairymen's association, with the discussions, addresses, and other papers presented at the meeting held in Chicago last February.

Col. Edward Wilkins, collector of the port of Baltimore, and the most extensive peach-grower in Maryland, says the peach orchards on the peninsula are in full bloom, and the indications are that the peach crop will be one of the largest ever known.

Mr. Blunt, in *The Country Gentleman*, says that on each stool of wheat there is but one stalk that bears the true seed, and that the centre one. The grain from it keeps up the standard, and seed from the other stalks deteriorate and runs the crop out.

The Southern Minnesota Stock Breeders' association will hold its first annual exhibition the first week in June next, at which the sum of \$2,500 will be awarded in horse and cattle premiums. The place for holding its exhibition has not yet been selected.

Mr. H. C. Jordan, of Wapello county, Iowa, has received his medal and diploma for the best corn exhibited at the Centennial. It is stated that Mr. Jordan last year raised about twelve thousand bushels of corn on a farm of twelve hundred acres in the south-east corner of Wapello county.

A large bear killed four sheep for Robert Young at Bristol, Vt., on Sunday night. On Monday all the hunters in Bristol, Lincoln, and Starksboro turned out and surrounded the animal, but he broke through the ring and escaped. During the night he came back and ate the remains of the sheep.

One of the most skillful and successful pisciculturists in the New England states is the well-known tobacco-grower, Frederick Fenton, Esq., of Poquonock, Hartford county, Conn. With the aid of his son he has during the present season been signally successful in the production of trout, his collection now numbering over seventy thousand.

The Calaveras (Cal.) Chronicle tells a huge story about the capture of a monstrous bear, weighing, when dressed, 1,453½ pounds, in a trap near West Point, a few days ago. With innumerable bullets in him, it took Bruin three hours to die. His skin is to be presented to President Hayes, while the ladies of that region, for miles around, are luxuriating in the city delights of genuine bear's grease.

An effort is being made to reclaim by irrigation, fifteen thousand acres of sage-brush land in the valley of Susan river, California, near Honey lake, east of the main summit of the Sierra Nevada, at an elevation of forty-two hundred feet above the sea. The cost of the work so far has been \$70,000, including two miles of flume six feet square, and an inverted syphon pipe forty-two inches in diameter, and five

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gar; moisten the paste with clean water and heat it over a fire until it runs smooth, and will not spread too much when dropped out; then drop it regularly on a smooth plate.

Cocoanut Drops.—Take one cocoanut, grate and dry it a little—then mix with the beaten whites of two eggs and sixteen teaspoonfuls of powdered sugar; make them up in small round balls, and bake quickly.

White Cake.—One cup melted butter, one cup and a half of white sugar. Stir the butter and sugar together. Half a cup of sweet milk, two teaspoonfuls cream of tartar, and one of soda. One teaspoonful lemon essence, whites of four eggs beat to a froth. Stir in flour sufficient to make a thick batter. Bake in a quick oven.

White Sugar Cakes.—Three pounds of sugar, three-quarters of a pound of butter, quarter pound saleratus, two tablespoonfuls of alum, and one quart of sour milk.

White Lemon Cakes.—Rub well together six ounces of butter, one pound and a quarter of flour; add one-fourth pint of (well beaten) eggs, one pound pulverized sugar, twelve drops essence of lemon, and two drachms carbonate of ammonia. The ingredients should be mixed into a paste, with as little handling as possible, rolled out about as thick as a silver dollar, cut into cakes and baked on buttered tins, with a gentle heat.

Yellow Cake.—One cup of melted butter and one of good brown sugar, stirred together. Half a cup of sweet milk, two teaspoonfuls cream of tartar, and one of soda. Yolks of four eggs. Flavor with nutmeg. Add sufficient flour to make a thick batter.

Black Cake.—Stone and clip up two pounds of raisins, two of Zante currants. Dredge both with flour; prepare also one pound of citron cut into little slips. Beat one dozen eggs up perfectly; stir in it one pound of best white sugar. Cream up and mix in one pound of butter and the same of flour. Stir in the raisins and currants, and the citron in layers, also two wine glasses of brandy, one tablespoon of powdered cinnamon, mace and nutmegs each. Bake several hours. A well made black cake, like a plum pudding, will drop to pieces with the least touch. This cake keeps any length of time.

Lady's or Silver or Bride's Cake.—The whites of twenty-five eggs beaten to a stiff froth. Two pounds of powdered sugar beaten into the eggs. Two pounds of flour and one and a half of butter rubbed into a cream. Mix smoothly and bake well.

Another Silver Cake.—The whites of eight eggs, one cup of butter,

two cups sugar, three cups flour, half a cup sweet milk, one teaspoonful cream of tartar, half a teaspoonful soda.

Another—Highly Recommended.—Stir to a cream one cup butter with two of sugar, add the whites of six eggs beaten to a stiff froth, one cup of milk with one-half a teaspoonful of soda dissolved in it, and flour so as to make it as stiff as pound cake. With the flour stir in one teaspoonful cream of tartar. Flavor as you please with lemon, nutmeg, or rose water.

Gold Cake.—One cup butter, two of sugar, three of flour, eight eggs, (the yolks,) half cup milk, teaspoonful cream of tartar, half teaspoonful soda, nutmeg; mix the flour and cream of tartar together.

Another—Highly Recommended.—Stir to a cream one-half a cup of butter with two of sugar; add the yolks of six eggs well beaten, and, if you like, the whole of another; then add half a cup sweet milk, with half a teaspoonful soda in it. With the flour put in a teaspoonful cream of tartar. This should be as stiff as cup cake. A teaspoonful of cloves, one of cinnamon, and half a nutmeg, with raisins or currants, or both, is considered by some an improvement.

Another.—Made in the same way as the second silver cake, except that the yolks instead of the whites of the eggs are used.

Golden Cake.—Half pound flour, half pound sugar, six ounces butter, yolks of seven eggs, yellow of one lemon and juice. Beat butter and sugar together, and add yolks, lemon, flour, half teaspoonful of soda, one of cream of tartar. Bake in flat pans, and ice it while warm, if possible.

Fruit Cake.—Pour one pint of boiling water on three-fourths of a pound of fat salt pork, chopped very fine, let it stand until it cools, add two cups of sugar and one of molasses, one pound and a half of raisins, two teaspoonfuls of soda, five cups of flour, one tablespoonful of cinnamon, and half do. of cloves. More fruits and spices can be added if wished. This and the following is from the *Am. Agriculturist*.

Another.—Mix one pound and half bread dough, three-fourths of a pound of sugar, half a pound of butter, four eggs, one pound of raisins, one pound of currants, and spice to the taste.

To make fruit cake cherries may be used for raisins; huckleberries for Zante currants, and plums for citron.

Another Fruit Cake.—Five cups brown sugar, eight cups flour, one cup sour milk, one cup molasses, seven eggs, three pounds raisins, stoned and chopped, half a pound citron, half a tumbler of wine, spice to taste.

Hard Times Fruit Cake.—Two cups of dried apples, soaked over night, chopped rather coarse, three cups of molasses, one egg, two-thirds of a cup of butter, one teaspoonful soda, all kinds of spice, flour as you would cup cake. This will make two loaves.

Frosting for Cake.—Take the whites of eggs, perfectly free from the yelk, and beat it up till it will stand in shape or pile. Prepare the sugar by pounding and sifting through a fine wire sieve; add a tablespoonful of arrow root or corn starch to the white of each egg. Add the starch and as much sugar as it will receive, not allowing it to run at all; put on the cake while warm, not hot. Spread it with a knife. Set it back in the oven to dry while the oven is only warm. If this rule is followed you can ornament the cake in any manner you please, as the icing is stiff enough to retain its form.

Another Icing.—Break the whites of some eggs into a bowl; beat in as much of the finest white sugar as will make it stiff as soft butter; beat long and hard, and put in a little tartaric acid; spread on smoothly with a knife and dry in the sun. You may roll up of best foolscap paper, little horns, with a very small orifice; through these, squeeze out the icing in fancy devices. This had best be left undone if your guests have ever seen a real confectioner's work.

Soyer's Royal Icing.—Have ready one pound of fine white sugar, put it in a basin with the white of three eggs, beat well together with a wooden spoon, until it hangs in flakes. The juice of half a lemon, or a few drops of the extract, will flavor it nicely.

PIES, PUDDINGS, SAUCES, ETC.

PASTRY.

Plain Pie Crusts.—Take of lard and water equal quantities, and salt the lard if fresh. Then mix it with the flour thoroughly, adding the water afterwards.

If a richer crust is desired, roll a part of the same thin, and spread with butter, then roll together and use as an upper crust, taking the other half for the under crust.

Nice Pie Crust.—One quart of flour, three-fourths of a pound of lard; put in half the flour to half the lard, and with water knead until smooth; roll it out thin three times, touching it each time with

the lard, sprinkling it with the flour, and rolling it up to be rolled again.

Crust for Chicken Pie.—Take one pint of buttermilk, one teaspoonful saleratus, one do. salt, two tablespoonfuls butter, with flour enough to make a paste sufficiently thick to roll into a thick crust.

Cream Pie Crust.—Take equal quantities of Graham flour, white flour, and Indian meal; rub evenly together, and wet with very thin sweet cream. It should be rolled thin and baked in an oven as hot as for common pie crust.

Note.—This makes excellent pastry if properly baked. Many patients have said to us they did not see how they could ever again relish the pastry in common use. This is so much sweeter and more palatable, to say nothing of its wholesomeness. This is contributed by Mrs. Mattie M. Jones, matron of the N. Y. Hygienic Institute. If good pastry can be made without lard or butter, the gain to weak stomachs and pockets will be very great.

To Make Puff Paste.—Rub a quarter of a pound of butter into half a quarter of flour very fine; make it up into a light paste, using as little cold water as you can work it up with; then roll it out about a quarter of an inch thick, put a layer of butter all over, sprinkle on a little flour, double it up and roll it out again; double and roll it out thus four or five times, using another half pound of butter; then it will be fit for any pies or tarts that require puff paste.

Fine Puff Paste.—One pound of fine flour, one pound of best butter, a teaspoonful of salt, the yolk of one egg, and a teacup of water. With the water and eggs, and as much butter as it requires, mix up the flour in a smooth mass. Roll it out and spread it over thinly with butter. Fold up the paste, and roll it out again; repeat this until your butter is exhausted. Roll out rather thin bottoms for your pies, and a half inch thick for your top crusts. Plainer crusts have simply less butter in them.

For meat pies and boiled crusts, finely prepared beef suet is often used.

Pastry should be made on a marble slab or slate, or the bottom of a large dish inverted. It should be kept cool, even if you have to lay it on ice between the rollings.

Magic Pastry.—Two tablespoonfuls of pounded sugar, four ounces of fine flour, two eggs. Mix all together very smoothly, and fry in lard.

Paste for Dumplings and for a Stew, either Chicken or Veal.—

One pint milk, two teaspoonfuls cream of tartar, one teaspoonful soda, one teaspoonful salt, with flour enough to make a thick paste.

To make Dripping Crust.—Take half a pound of fresh, clean dripping, and work it well up into a pound and a half of flour; rub it well in, and make it into a paste with water with the chill taken off. If worked well, it makes an excellent crust; some, however, prefer butter, a quarter of a pound of which will be enough for a pound and a quarter of flour.

Spices.—The Paris correspondent of the N. Y. *Commercial Advertiser* says: Cinnamon, cloves, nutmeg, and similar spices, have no location in a Continental European family, where they never make a pudding, or pie, or cake of any description, and where they would consider it the greatest extravagance to eat such things.

PIES.

Drying Pumpkins and Making Pies.—Cut them and stew them till they are soft and dry; pound and strain them through a colander; then grease pie pans and spread it on a quarter of an inch thick and dry it; roll it up and put it away in a tight box or bag from the insects. Each one of these rolls will make a pie. It is very easy now to make a pie. Put it in sweet milk and let it soak about two hours; put in an egg, a tablespoonful of sugar, a teaspoonful of ginger, and one of alspice; and if you are lovers of pumpkin pie, as we are, you will pronounce it good.

Pumpkin Pie.—By Mrs. Mattie M. Jones: Select a pumpkin which has a deep, rich color and firm, close texture. Stew and sift in the ordinary manner; add as much boiling milk as will make it about one-third thicker than for common pumpkin pie. Sweeten with equal quantities of sugar and molasses, and bake about one hour in a hot oven.

Note.—Those who will try this method will be surprised to find how delicious a pie can be made without eggs, ginger, or spices of any kind. The milk being turned boiling hot upon the pumpkin causes it to swell in baking, so that it is as light and nice as though eggs had been used.

Another.—One quart of milk, with two peeled, boiled and mashed turnips, one pound brown sugar, four eggs, one-half cupful of molasses, one half cupful of wheat flour, one spoonful of ginger, and one nutmeg, seasoned and baked as pumpkin pie should be.

Squash Pie.—By Mrs. M. M. Jones: This is even superior to pump-

kin, as it possesses a richer, sweeter flavor, and is far preferable. It is made in precisely the same manner as pumpkin pie.

Pumpkin Apple Pie.—Cut in thin slices the common pumpkin; steam it till soft; fill a plate as for apple pie, and if the plate be large put in three tablespoonfuls of vinegar and a cupful of sugar, flavoring with lemon or spice; then bake slowly.

This recipe was given by a lady who took the premium for some presented at the Sagadahock County Fair, Me. It is very nice, but not necessary to steam the pumpkin. It can be used raw, like apple. Any one can vary to suit the taste. I prefer four spoonfuls of vinegar and less sugar.

Sweet Apple Pie.—Pare mellow sweet apples, and grate them upon a grater. A very large grater is necessary for this purpose. Then proceed as for pumpkin pie. From Mrs. M. M. Jones.

Another.—By a correspondent of the *American Agriculturist*: Make them precisely the same way as pumpkin pie, omitting the ginger, and adding a little lemon, if liked. Pare, cut and stew the apples. If cooked in a covered deep earthen or other dish in the oven, they are better. Strain through a colander; add a little milk—cream is better. If there be no eggs to spare, stir in a handful of flour, or, about a spoonful to a pie. Sweeten to taste with sugar. A mere trifle will be found sufficient. Bake a good while in a moderate oven.

Sour Apple Pie.—Take nice, tart apples—spitzenbergs are best, although pippins, greenings, russets, &c., are excellent. Slice them; fill the under crust an inch thick; sprinkle sugar over them; add a spoonful or two of water; cover with a thin crust, and bake three-fourths of an hour in a moderate oven. From Mrs. M. M. Jones.

Spider Apple Pie.—It may be made plain and cheap, or very rich and costly, and always be good, if it be cooked just right.

Make a good dough of rye flour, or wheat flour, or Graham flour, which is the best, and prepare it as for biscuit. Prepare the apples as for common pies, and after greasing the spider place the apples in a heap in the spider. See that no apples touch the side of the spider. Roll out the crust as thick as your hand, and place it on the apples, pressing it down between the apples and the side of the spider. No under crust. Cut a hole in the top of the crust, and pour into the apples about half a teacupful of water for a spider that will hold about three quarts, and a half teacupful of molasses, and a piece of butter as large as a hen's egg. Cover it with a close lid, and cook with a moderate fire. Serve when warm, with cream and sugar, with

butter and sugar with rich gravy, or with sorghum syrup, &c. And when satisfied that

“Tis not for man's supremest good,
To cram himself with loathsome food,”

take one plate less.

Substitute for Green Apple Pie.—For one pie of ordinary size, take one-half of a slice of a shilling loaf of baker's bread, (home-made wheat bread will answer,) one teacupful of hot water, one teacupful of brown or white sugar, one teaspoonful of tartaric acid, and mix together, and season with nutmeg or lemon. Equal if not superior to green apple pie.

Apple Puffs.—By Mrs. M. M. Jones.—Make a crust the same as for cream pie crust, using rather thicker cream, however; roll as thin as possible; cut out in small round cakes with a common biscuit cutter; take one of these, wet it around the edge, and place in the center a teaspoonful of apple sauce. Take another, and cut with a small cracker cutter a hole in the center about one inch in diameter; place the ring which is left upon the first one, and pinch the edges tightly together. Bake in a quick oven.

Note.—These, if rightly made, are very nice. Any kind of fruit may be used in place of apple sauce, by stewing it and simmering down till very little juice remains.

Another.—Prepare some apples in the same way as for sauce; while hot, beat them up with a small quantity of butter and a very little sugar; lemon juice and sugar to taste. Take the whites of two eggs, and beat them up with two spoonfuls of wine, one of cream, one of pounded sugar, and one of lemon juice; when beaten to a froth, put it on the apples.

Peach Pie.—Mellow, juicy peaches, peeled, whole or in quarters, laid in a deep pie plate—on each layer of peaches sprinkle a thick layer of sugar, a tablespoonful of water, and a light sprinkling of flour, and it will need no other seasoning. Cover with a thick crust and bake an hour.

Another.—Select rich, juicy peaches, of a rather small and nearly uniform size. They should be very ripe; wash them thoroughly, to remove all the furz; fill the pie dish with them, sprinkle sugar and a little flour over them, add a tablespoonful of water, cover and bake about one hour.

Note.—If whole peaches are not very ripe, it is better to pare, stone and slice them. By Mrs. Jones.

Plum Pie.—This is made in the same manner as the peach pie. It is not as wholesome, as it requires so much sugar to make it at all palatable.

Cream Pie.—Mix together one egg, one cup sugar, one piece of butter as large as an egg, three cups flour, one teaspoonful cream of tartar, half teaspoonful soda, one cup sweet milk. Pour this on tin plates and bake light brown. When cold, split them open and put in the custard made as follows: Take two eggs, one cup sugar, half cup flour, one pint milk; flavor with lemon. Beat the eggs, sugar and flour together; boil the milk, and while boiling stir in the mixture, let it cook a few seconds. The above quantity will make three common sized pies. This and the next one is from the *Am. Agriculturist*.

Another.—In one pint of sweet cream stir one tablespoonful of flour, half cup of sugar, a little salt; flavor with nutmeg or extract of lemon; make the crust like custard pie.

Another—Fine.—Half a pound of butter, four eggs, sugar, salt, and nutmeg, to your taste, and two tablespoonfuls of arrow root wet; pour on it a quart of boiling milk, and stir the whole together. To be baked in deep dishes.

Cracker Pie.—To a common sized bake tin eight crackers, to be broken fine, one teaspoonful of tartaric acid, one teacup of sugar, with water sufficient to wet the whole—say half a pint or a little more, with spice to suit the taste. Thought by some better than apple pie. Dry light bread or biscuit will also make very good pie, but they will require a little longer to soak. Bake the same as any pie.

Lemon Pie.—No. 1. One lemon, one teacup of sugar, two eggs, three tablespoonfuls of flour, one teacup of milk. Grate the rind of the lemon; put the sugar, flour, rind, the juice and the *yelks* of the eggs together; add the milk the last thing. Pour this custard into a deep plate lined with a paste, and bake. When done, spread over the top the *whites* of the eggs beaten to a froth, and sweetened with four tablespoonfuls of powdered sugar; then return it to the oven and brown slightly.

No. 2. One large or two small lemons, three cups of sugar, two-thirds of a cup of flour, two cups cold water, two eggs, a piece of butter the size of an egg. Put the flour, sugar, and eggs together, then add the juice, grated rind and water, and the butter (melted.) Bake in a deep plate without an upper crust.

No. 3. One large, fresh lemon, grated fine—the pulp is rinsed in half a tumbler of water, yelks of four eggs beaten thoroughly, six

tablespoonfuls of sugar, one tablespoonful of flour, stirred with the eggs, two tablespoonfuls melted butter, all well beaten together, one crust. Bake until done. Then take the whites of four eggs, with three tablespoonfuls of sugar, well beaten, spread smoothly on the pie, return to the oven until slightly browned.

No. 4. One lemon, one teacup of sugar, one teacup of sweet cream, well stirred. Bake with two crusts.

No. 5. Take two quart bowls; in one squeeze three lemons and extract the seeds. In the other, beat three eggs, with three teacups of sugar; grate in some nutmeg, and set them aside. After mixing the crust which do with half a pound of lard to rather more than a pint of water, sometimes rolling it out and spreading on it a quarter of a pound of butter, at other times omitting most of the butter; put the under crust on two plates; then mix the contents of the two bowls; pour it on the crust, cover them with the top crust, and bake immediately, as the lemon juice and egg soon harden together.

If a more simple pie is liked, add a teacupful of boiled corn starch. No milk.

No. 6. Two lemons, four eggs, two spoonfuls melted butter, eight spoonfuls white sugar. Squeeze the juice and grate the rind. Cover a plate with pastry, pour the mixture in and bake till the pastry is done. Then beat the whites of the eggs to a stiff froth, stir into it four spoonfuls of sugar, put it on the pie and place it into the oven till a delicate brown. This quantity makes two common sized pies.

No. 7. For one pie, take two good sized fresh lemons; grate the rind and squeeze out the juice, and mix it with sugar to make it sufficiently sweet. Line a deep pie dish with pastry, pour in some of the mixture and cover it with pie crust rolled *very* thin, (as thin as possible;) then some of the mixture and crust again, till all the mixture is used.

Cover the whole with a thick crust, and bake in a *slow* oven, that the juice may not cook out.

No. 8. One lemon, four eggs, one and a half coffeecups of sugar, two-thirds do. of water, two tablespoonfuls of flour. Take the whites of two eggs you use for them, and, after the pies are baked, make frosting, put it on them, and place the pies in the oven again for a very few moments, only long enough to brown them slightly. Of course there is no upper crust to these pies.

No. 9. Three lemons, one pound of sugar, one pint of milk, ten eggs, quarter of a pound of butter. This is richer.

Mince Pies.—Take a pound of beef free from skin and strings, and

chop very fine. Then two pounds of suet, which likewise pick and chop; then add three pounds of currants, nicely cleaned and perfectly dry, one pound and a half of apples, the peel and juice of a lemon, half a pint of sweet wine, half a nutmeg, and a few cloves and mace, with pimento in fine powder. Have citron, orange and lemon ready.

Another.—Contributed to the *American Agriculturist* by Maria Ray, Suffolk County, N. Y.: Take nine pounds of boiled beef, two pounds suet, six pounds raisins, four pounds currants, four ounces cinnamon, two of alspice, one of cloves, one quart molasses, seven pounds of clean brown sugar, boiled down in two gallons of sweet cider to half the bulk. Mix all well together, and pour the boiling cider on it. Cover close until next day, when it will be fit to be made into pies. This will keep good for at least six months.

Mince Meat.—There are various opinions as to the result of adding meat to the sweet ingredients used in making this dish. Many housewives think it an improvement, and use either the under cut of a well roasted sirloin of beef, or a boiled fresh ox tongue for the purpose. Either of these meats may be chosen with advantage, and one pound, after it has been cooked, will be found sufficient. This should be freed from fat and well minced. In making mince meat, each ingredient should be minced separately and finely before it is added to the others. For a moderate quantity, take two pounds of raisins, stoned, the same quantity of currants, well washed and dried, do. of beef suet, chopped fine, one pound of apples, pared and cored, two pounds of moist sugar, half a pound of candied orange peel, and a quarter of a pound of citron, the grated rinds of three lemons, one grated nutmeg, a little mace, half an ounce of salt, and one teaspoonful of ginger. After having minced the fruit separately, mix all well together with the hand. Then add half a pint of brandy, and the same of sherry. Mix well with a spoon, press it down in jars, and cover it with a bladder.

Another.—Six pounds of meat, three of suet, six of raisins, seven of sugar, nine of apples, one pint of wine, three gills of brandy, half pint molasses, one pint rose water, essence of lemon, one quart of liquor of the meat, one cup of salt, one-fourth of a pound of cinnamon, or orange peel, three ounces of cloves, one dozen nutmegs; add a little cider if you wish before putting in the oven.

Another.—Six pounds of currants, three pounds of raisins, stoned, three pounds of apples, chopped fine, four pounds of suet, two pounds of sugar, two pounds of beef, the peel and juice of two lemons, a pint

of sweet wine, a quarter of a pint of brandy, half an ounce of mixed spice. Press the whole into a deep pan when well mixed.

Another.—Two pounds of raisins, three pounds of currants, three pounds of beef suet, two pounds of moist sugar, two ounces of citron, one ounce of orange peel, one small nutmeg, one pottle of apples chopped fine, the rind of two lemons and juice of one, half a pint of brandy; mix well together. This should be made a little time before wanted to use.

Mince Meat to Keep.—Take a pound and a half of currants; a pound of best raisins, stoned; three quarters of a pound of almonds, cut very small; the peel of one lemon, minced small; the juice of one lemon, three apples, minced small; a pound of citron minced small; a pound and a half of suet shred very fine; an eighth of an ounce of nutmeg; the same of cinnamon; the same of mace, and the same of cloves. Put the whole into a jar, and keep it dry. When wanted, mix it with either wine or brandy.

Mince Meat Without Meat.—One pound hard apples cut small, one pound currants, half a pound shred raisins, half a pound beef suet, quarter of a pound moist sugar, one ounce lemon and citron peel, quarter of an ounce cinnamon, one drachm mace, the rind of a lemon grated, one glass of brandy and two glasses of sherry. Double the above for a large family.

Rhubarb Pie.—Strip the skin off the tender stalks of rhubarb, and slice them thin. Put it in deep plates lined with pie crust, with a thick layer of sugar to each layer of rhubarb. A little grated lemon peel may be added. Place over the top a thick crust; press it tight around the edge of the plate, and perforate it with a fork, that the crust may not burst while baking, and let the juice of the pie escape. Bake about one hour in a slow oven. Rhubarb pie must not be quick baked. Some stew rhubarb before making it into pies, but it is best without stewing.

Berry Pies.—Take nice ripe berries, wash and pick them over carefully; place them an inch or more thick on the under crust; strew a small quantity of sugar and a trifle of flour over them; put on the upper crust and bake half an hour. From Mrs. M. M. Jones.

Grape Pie.—From the *Am. Agriculturist*: Put the pulps into one vessel and the skins into another. Simmer the pulp a little and run it through a colander to separate the seeds. Then put the skins and pulp together and they are ready for jugging or for pies. Pies prepared in this way can hardly be distinguished from plum pies.

Cider Pie.—From the *Am. Agriculturist*: Mix one cup of boiled

cider, one cup of water, one cup of sugar, one egg, two tablespoonfuls of flour, and a little salt. Should the cider be thick, use two-thirds of a cup and fill the cup with water. Bake with single crust like custard pie.

Vinegar Pie.—From the *Am. Agriculturist*: Mix two cups of vinegar, one cup and a half of sugar, two tablespoonfuls of flour, and a piece of butter the size of a walnut. Prepare a paste to receive these ingredients, and bake the same as any ordinary pie.

Pie-Melon Pie.—To make a good pie-melon pie, take, instead of vinegar, dried pie plant, and boil it by itself. Then boil the melon and let it drain in a colander until all the juice is out, after which boil the pie plant and melon together a few minutes, and you will have a pie equal to one made of apples.

The apple pie melon makes beautiful preserves, which are far superior to the citron.

Another.—Remove the seeds, pare, slice up, and stew them as you would pumpkins, just enough to have it like stewed apples. When done, add sugar, spices and a little acid, such as tartaric acid, lemon juice or good sharp vinegar, (the last is not quite as good.) A tablespoonful of lemon juice to four pounds of melon is the best preparation. Do not put the sauce in copper or brass. For a pumpkin or a custard pie, omit the acid, but bring the mass to a proper consistency by adding sugar, milk and eggs. Only a little of these ingredients will be necessary, just sufficient to give color and flavor. A superior preserve is also made of it.

Cocoonut Pie.—One cup of sugar, butter the size of an egg, whites of three eggs beaten very stiff, half a cocoonut grated, and the milk.

Corn Starch Pie.—To one quart of milk, put two tablespoonfuls of corn starch, and two eggs, sweeten and season to your taste, line a pie plate with crust, and bake as custard pie.

Cherry Pie.—A new way. Make a pie of cherries as usual, only put in some ripe currants. Bake gently.

Carrot Pie.—Wash and scrape the carrots, boil till soft, sift and prepare like pumpkin pies; many think them superior to pumpkins—they may be made with or without eggs.

Sweet Potato Pie.—By Mrs. M. M. Jones. Boil and sift through a colander, nice, ripe, sweet potatoes, then add boiling milk, and make the same as pumpkin pie. See under Cooking the Sweet Potato.

TARTS.

Cherry Tart.—Line the sides of a dish with good crust; strew in sugar; fill it with picked cherries, and put sugar at the top; red currants may be added, if liked; cover with crust, and bake.

Cranberry Tart.—Wash the berries in a pan of water, rejecting all the bad ones; simmer them till they become soft and burst open; strain through a fine wire sieve, removing all the hulls; add sugar to the taste. Bake on a thick under crust in a moderate oven.

PUDDINGS.

Puddings are baked in dishes prepared for the purpose, or sometimes in pie plates, after an under crust is put on. Fine puddings have only a border of paste on the rim of the dish—none underneath it. Apples, quinces, potatoes, cushaws, pumpkins, and any fruit that can be reduced to a fine mass, may be seasoned with sugar, delicate spices, cream or butter, and beaten eggs, and make nice puddings. Allow one egg and two tablespoonfuls of melted butter to each pudding. The cream may be used in the same proportion with the butter if the substance is dry, but will render juicy fruits sloppy.

Sauce for Puddings.—One cup of sugar, half cup butter, one teaspoonful flour, one glass cold water. Boil two minutes.

Another Pudding Sauce.—One cup sugar, half cup butter; to be well stirred together, after being heated. Then heat a wineglass of wine. Beat one egg *very light*, and stir all together. Much liked.

Another.—One cup sugar, one cup boiling milk, half cup butter. Stir the sugar and butter to a cream. Add a little nutmeg. Recommended.

Another.—From *Am. Agriculturist*: One egg, three-fourths of a cup of butter, one cup and a half white sugar, half glass wine, two tablespoonfuls cream. Set a dish containing it in a vessel of hot water, and stir half an hour.

Another.—Boil the thin rind of half a lemon, one ounce and a half of sugar, and a wineglassful of water, for fifteen minutes; then take out the lemon peel and mix one ounce of butter with a small quantity of flour, stir them round in the sauce till it has boiled a minute, and then add a glass and a half of sherry.

Another.—One pint of molasses, lump of butter size of a large hen's egg, one tablespoonful (heaping,) of brown sugar, one teaspoonful

(heaping,) ground cinnamon. Boil about half an hour. When cooked, pour the sauce *on* brandy, (one wineglassful.)

Hard Sauce.—By editor *Am. Agriculturist*: Beat butter with twice its weight of powdered white sugar until the whole is brought to a smooth mass. It may be followed by stirring in a little wine, some lemon juice with grated rind, or nutmeg. In cold weather, it is necessary to let the butter soften, but not melt, in a warm place.

Bread Pudding.—Crumble down stale bread in a dish; boil sufficient milk, which pour on to the bread. Cover it up for a quarter of an hour that the bread may swell; then beat it up to a fine pulp, stirring in a lump of butter. Now beat up three or four eggs, ground cinnamon, ginger, grated lemon peel, and sugar to taste: half a pound of raisins, stoned and chopped, half a pound of currants, picked and washed, with a little salt. Mix this among the bread make it of the consistence of thick batter. Butter the dish, pour it in, and bake for half an hour.

Bread and Butter Pudding.—Cut some slices of thin bread, and butter, and have ready some currants, picked and washed. Butter a dish, and lay slices of the bread and butter on the bottom of it; then strew some currants over them, then lay another row of bread and butter, then some more currants until the dish be full. Then beat up our eggs; add a pint of new milk, a little ground cinnamon, nutmeg, grated lemon peel, four or five bitter almonds, blanched and crushed, and sugar to your taste; also a very little salt. Mix all these together, and pour them over the bread and butter. Bake it half an hour.

Another.—Butter a dish well; then lay in a few slices of bread and butter. Boil one pint of milk, pour it over two eggs, well beaten, and then on the bread and butter. Bake in a hot oven half an hour. Currants or raisins may be added.

Batter Pudding.—Beat up six eggs, take a quart of milk, six spoonfuls of flour, eight bitter almonds, blanched and grated, a teaspoonful of salt, and one of ground ginger; mix all together, butter your basin, and pour it in; tie a cloth over it and boil it an hour and a quarter. When it is done, turn it into a dish, and pour melted butter and sugar over it.

Batter Pudding without Eggs.—Use a quart of milk, mix six teaspoonfuls of flour, with a little of the milk first, add the rest by degrees, with a teaspoonful of salt, two of beaten ginger, and two of the tincture of saffron; mix all together quite smooth, and boil it for an hour, either in a buttered cloth or basin.

Rice Pudding.—Take a teacupful of rice, and as much sugar, two quarts of milk and a teaspoonful of salt; bake two hours.

Another.—Boil the rice until it becomes perfectly soft, then add to it half a pound of butter, the same quantity of sugar, one nutmeg, and as much wine and nutmeg as you prefer; beat in also four eggs. Bake in a dish.

Another.—Over cold rice pudding pour a custard, and add a few lumps of jelly, or preserved fruit. The pudding is very nice and very simple.

Boiled Rice Pudding.—Pick and wash your rice, put it into a clean saucepan with plenty of water, but without a cloth; let it boil till the grains are swelled and soft, which they will be in about twenty minutes after it boils; then drain off the water and set the saucepan on the hob, that the rice may be perfectly dry; put it into a buttered mold or basin to set; then turn it out, and pour sweet sauce over it.

Baked Rice Pudding.—Boil a quarter of a pound of rice in a quart of new milk, and stir it that it may not burn; when it begins to thicken take it off, let it stand till cool, then stir in a lump of butter, sugar to your palate, and some grated nutmeg; butter the dish, pour it in, and bake it. Raisins, currants, or sliced apples may be stirred in if liked.

Another.—Butter a dish; take a gill of rice, wash it clean, add half a teaspoonful of cinnamon, a pinch of salt, half a cup of molasses, and a quart of milk. Bake it three hours.

Rich Rice Pudding.—Pick and wash a quarter of a pound of rice; put it on in cold water and let it boil for five minutes, then strain the water off and put the rice on again in as much new milk as it will require to boil it quite soft with a good pinch of salt; stir it frequently to prevent it burning; when done, put it into a large basin to cool. Beat up six eggs, a pint of milk and sugar to your taste; it should be rather too sweet when you make it, as the sweetness goes off in the baking; add also five or six bitter almonds blanchéd and crushed with plenty of lemon peel chopped very fine; mix all well together, then stir it into the rice, taking care to mix it thoroughly, so that there be no lumps. Butter your dish and pour in the mixture; and then shred about two ounces of beef suet as finely as possible all over the top; grate over that half a nutmeg, and bake it half an hour in a moderate oven.

Rice Pudding Without Eggs.—Take a teacupful of rice to three pints of cold milk, add a little salt and sugar, and set it into a cool oven soon after breakfast. Let it swell and cook slowly till half an

hour before dinner; then lift the slight crust that will have formed and pour in a cupful of cream; when this has come slowly to the scalding point, it is ready for the table.

Excelsior Rice Pudding.—One cup rice swelled, one quart milk, yolks of four eggs, one nutmeg. Sweeten to your taste. Bake the above one hour. Then beat the whites of the eggs to a stiff froth with white sugar and spread over the top. Bake the whole one minute. Serve hot or cold as you please.

A Country Pudding.—Mix the yolks of three eggs smoothly with three heaped tablespoonfuls of flour; thin the batter with new milk till it is the consistency of cream; whisk the whites of the eggs separately, stir them into the batter, and boil the pudding in a floured cloth or basin for an hour. Before it is served, cut the top quickly in cross bars, pour over it a small pot of raspberry or strawberry jelly or jam, and send quickly to table.

Cottage Pudding.—Rub together three tablespoonfuls of melted butter with one cup of white sugar, add one egg beaten light, pint of flour, with two small teaspoonfuls of cream tartar sifted, one teacup of sweet milk, with a small teaspoonful of soda mixed in it.

Another.—Take three quarts of milk to one quart of flour, one-half of the milk to be put on the fire and brought nearly to a boil, then the other half of the milk with the flour well blended in it—stir into the pot on a slow fire, and keep it boiling for one hour; or until it is as thick as good paste, when you must add a small teaspoonful of ginger and salt, and pour into shallow dishes to cool; when it will cut like good jelly, serve up cool with warm milk in winter, or cool milk in summer. If you choose, add a little vanilla or other syrup while warm, and serve with a spread of strawberries, peaches, or jellies, or any of the fruit, butter and cream. Be careful to stir it all the time while cooking. It will keep good five or six days in a cool place.

Another.—One pint of flour, two teaspoonfuls cream of tartar, one do. of soda, three do. of melted butter, one cup of sugar, one cup of sweet milk, one egg. Mix all together and beat it a little while. Grease a dish, put it in and bake *half an hour*. Turn it out and serve with wine sauce.

A Favorite Pudding.—Half a pound of finely shred suet, half pound flour, two or three ounces of moist sugar or treacle, half pound currants or stoned raisins, two or three well beaten eggs, about a cupful of milk, and a small quantity of salt. Mix all well together, and bake immediately in a pie dish, for about half an hour. All young people like it, and it eats like a family plum cake. Of course season-

ings may be added, but a healthy appetite is the best spice for young people. Very nutritious.

Superior Pudding.—From the *Am. Agriculturist*: Boil two quarts of milk; rub one egg in flour sufficient to make it dry enough to rub through a sieve. Stir the egg and flour in the boiling milk; cool, and add four eggs well beaten, and one tablespoonful of sugar. Bake the same as custard. Serve with a sauce of butter and sugar well beaten; use any flavoring desired.

Custard Pudding.—Beat up six eggs, add a quart of new milk, a little lemon peel shred fine, five or six bitter almonds blanchd and grated, or crushed, and sugar to your taste; mix all together, then have ready your dish covered with a good puff paste, into which pour the custard; grate over it half a nutmeg and bake it, or put it into a basin without paste, tie a cloth over it and boil it. If boiled, serve it with melted butter.

Another.—Soak some bread in one quart of good milk, then add eight eggs well beaten, some raisins and cinnamon. Pour the whole into a dish, putting in as much sweetening as you like. Butter a few slices of bread, lay them on the top, and bake the pudding in an oven or stove.

Flake Pudding.—From *Am. Agriculturist*: Take three eggs and three cups of milk, stir in flour until it makes a thin batter, put a small quantity in the pans to allow for raising, bake quickly.

Corn Starch Pudding.—Take six tablespoonfuls of the starch, add sufficient new milk to dissolve it, add one to three eggs and beat thoroughly together—have one quart of new milk, a little salt, warmed nearly to boiling, then pour in the mixture, stir briskly, and boil three minutes. For sauce use cream and loaf sugar, or any other pudding sauce.

Oat meal Starch Pudding.—Take, say, two quarts of oat meal, and pour into it sufficient pure cold water to cover it well, let it stand about two days and then strain it through a sieve or cloth into a clean vessel. To make sure that you get all the substance out of the meal, after the first water is drained off, pour on it more water and rub it well. Let the water stand till well settled, then pour off the top, and at the bottom will be found the starch. To make this perfectly pure and white, after you have turned off the first water, pour in on top of the starch a little more pure water, and after it has swelled pour it off as before; this operation may be repeated till the starch becomes perfectly fine and white. It is then fit for cooking. This is done simply by putting a few spoonfuls into a saucepan with fresh

water, and a little salt. It will be done with about four minutes boiling.

A Cheap and Good Pudding.—It is at once economical, healthful, nutritious and delicious; it may be eaten cold or warm. When cold it is a nice substitute for blanc mange.

Into a nappy that will contain about two quarts, place apples, pared and cut coarsely, until the dish is nearly full; sprinkle on this six tablespoonfuls of sago. Let it bake about two hours. If the upper pieces of apples become too brown, push them down, and others will take their places.

This pudding should be eaten in deep plates or saucers, with cream or milk and sugar.

A Plain Pudding.—Six ounces of flour, a half pint of molasses, a half pint of whortleberries in the season for them, or Zante currants in winter, one small teaspoonful saleratus, a little salt, and one egg. A piece of suet the size of a small egg, is an improvement, but not necessary to make an excellent pudding; boil in a cloth an hour and a half, and eat with any sauce that is preferred.

Another.—A good batter of wheaten flour, with or without fruit mixed in it, boiled, is very good. The pudding bag should be always loose, also wet, and the inside floured to prevent water getting to the batter.

Apple Pudding.—Make a crust as for common biscuit,—with buttermilk and butter, or cream of tartar and soda, with sweet milk,—then roll out, leaving it one-half or two-thirds of an inch thick, and spread it over a deep dish. Put into it some stewed apples, then over this place a crust similar to the lower one, place it in the oven and bake one-half an hour. Serve with cream and sugar. Salt the apple a little.

Sweet Apple Pudding.—From the *Am. Agriculturist*: Pare, core, chop fine and stir the apples into a batter made of sweet cream, eggs and flour, say three eggs to a pint of cream, and flour enough to make it not very thick. Stir well and bake on round buttered tins or pudding dishes. This needs to bake two or three hours. The best sauce to eat with it, is sweetened cream; any other preferred, will do.

Sago and Apple Pudding.—Take six ounces of sago, previously picked, five large rich apples, peeled, quartered and cored, and one teacup of sugar. Pour boiling water on the sago, let it stand till cold, then mix in the apples and sugar, and bake about one hour.

Peach Pudding.—Begin with the peaches. Take half a pint of nicely pared, sundried peaches. Wash them thoroughly and quickly

in pure, cold water—never put them to soak and soak all the *peach* out of them. It is the flavor that makes their excellence. Having cleansed the peaches, chop them with chopping knife and wooden bowl as fine as currants. Then commence manufacturing the pudding.

Have, in a porcelain-lined kettle, over a moderate fire, a quart of new milk, into which has been stirred two thoroughly beaten eggs, three tablespoonfuls of clean brown sugar, a quarter of a pound of butter, and any kind of seasoning you prefer, salt being an element, of course. Stir in first a pint of sifted flour, sifting in from the hand gradually, and stirring the while vigorously. Then stir in the peaches in the same manner, then half a pint of coarse yellow corn meal, and finish the stirring in with a dessertspoonful of broma, or salaratus, dissolved in a half pint of warm water. Continue the stirring moderately for ten minutes, and then cover the kettle closely and set it back off the fire, and let the material smother slowly an hour and a half. Serve as a dessert, with cold cream and white sugar.

An Excellent and Economical Pudding.—Pare and core half a dozen Rhode Island greenings, or other easily cooking apples, chop them into small bits; dry some bread in the oven—stale is the best—till it is crisp, then roll it into crumbs; butter a deep dish, and place in it a layer of crumbs; then put in the apples, with a little sugar and such spices as you like; cover the apples with another layer of crumbs; add a little beef suet, chopped as finely as possible; pour in half a pint of milk; bake till nicely browned, and serve with hard sauce.

Minute Pudding.—If you have some stale bread on hand, you can make a cheap, quick pudding before breakfast, thus: Put a pint of sweet milk in the frying pan; cut the bread up in it; put in a tablespoonful of sugar, and a teaspoonful of alspice; a little nutmeg will help it; let it boil. As soon as the bread is soft, stir in an egg, and it is done.

A quick dinner, and a good one, too—for instance, on washing-days, when the women don't want to be bothered—is to put a quart of sweet milk on the fire; mix two or three handfuls of flour in a dish with milk enough to wet it as you would for starch; make it smooth with a spoon so that there will be no lumps in it; when the milk boils stir this in; beat three eggs and stir them in, and two tablespoonfuls of sugar, and it is done. Eat it with butter if you choose.

Black Pudding.—This most unchristian article of diet is made by stirring corn meal into fresh hog's blood. It is seasoned with salt,

pepper and spices, stuffed and cooked as sausage. It is eaten with great gusto by some persons.

Steam Pudding.—Four teacups flour, one do. sugar, one do. sweet milk, one tablespoonful melted butter, one teaspoonful soda, two do. cream of tartar, two eggs, with any kind of fruit you wish. Steam two and a half hours. Highly recommended.

Steamed Flour Pudding.—One pint of flour, one pint of milk, and four eggs, and a little salt. Steam it one hour and a half.

Rolled Pudding.—Make soda biscuit crust; roll in currant jam, or any other tart fruit. Let it boil three-quarters of an hour, or steam two hours.

Biscuit Pudding.—This is a very delicate and nice pudding for an invalid, and is made so simply that it is generally found useful in case of illness. Grate three large Naples biscuits, pour upon them one pint of boiling milk or cream, and cover them down closely. When cold, add the yolks of four eggs, the whites of two, some nutmeg, a little brandy, half a spoonful of flour, and some sugar to taste. Boil this for one hour in a basin or mould, and serve it up with melted butter, wine and sugar.

Hard Times Pudding.—Take half a pint of molasses, half a pint of water, two teaspoons of saleratus, one tablespoon of salt, thicken with flour to a tolerably thick batter. Put in a bag and boil, (better still in a dish and steam;) boil steadily from two to three hours. It will be good without sauce of any kind; but a little butter or cream, or butter and sugar, made into a sauce with flour and boiling water, spiced with a little nutmeg, will be found a great addition. Try it. If it isn't good the first time, try it again; but be very careful not to lift the lid, or let the water stop boiling.

Sunderland Pudding.—Eight spoonfuls of flour, three eggs, one pint milk. Bake in cups about fifteen minutes. Wine sauce. Very nice.

Victoria Pudding.—Six ounces fresh butter worked up to a cream, four ounces of loaf sugar mixed in with the butter, four yolks of eggs, beaten, six ounces bread crumbs, two rinds of lemon, grated. Line the dish with a light crust and a layer of jam or marmalade, then pour in the mixture, and bake in a very slow oven for half an hour. Froth the whites of the eggs with a little loaf sugar, and place them over the pudding, and put in the oven just before serving.

Hannah Moore's Pudding.—Six ounces of apples, chopped fine, six ounces of beef suet, chopped fine, six ounces of bread, grated, six ounces of currants, six ounces of raisins, stoned and chopped, six ounces

of sugar, six eggs well beaten, three ounces of candied peel chopped, half a nutmeg grated, and a glass of brandy. These ingredients to be well mixed, and boiled in a well buttered quart mould for three hours. This pudding should be mixed the day before it is cooked. It is a rich pudding for company, and not expensive.

Harrison Pudding.—Four cups flour, two-thirds cup melted butter, one cup molasses, one cup raisins, one cup milk, one teaspoonful soda. Boil in a bag or tin dish three hours.

Taylor Pudding.—One cup molasses, half cup chopped raisins, one cup of suet, one cup of sour milk, two eggs, teaspoonful of soda, two teaspoonfuls cream of tartar, spice and salt to taste, flour to make thick batter, steam three or four hours. Cream of tartar omitted when sour milk is used.

The Prince of Wales Pudding.—Chop four ounces of apple, the same quantity of bread crumbs, suet, and currants, well washed and picked; two ounces of candied lemon, orange, citron, chopped fine: five ounces of pounded loaf sugar, one-half a nutmeg grated. Mix all together with four eggs. Butter well and flour a tin, put in the mixture, and place a buttered paper on the top, and a cloth over the paper. If you steam it the paper is sufficient. It will take two hours' boiling. When you dish it, stick cut blanched almonds on it and serve with wine sauce.

The Farmer's Pudding.—Take four heaping tablespoonfuls of fine corn meal; three large spoonfuls of wheat rusk, finely pounded, and soaked one or two hours previous to mixing with the meal; add three-fourths teacupful of good molasses or syrup, a little salt to season, and a cupful of sweet cream, or butter the size of a small hen's egg; put in carbonate of soda, if at hand, size of a large pea, pulverized. Stir all well together, and just as it goes into the hot oven, pour in a half pint of sweet milk, and stir again. Water will answer instead of milk. We think you can enjoy this as a dessert.

Farmer's Own Pudding.—Three pounds of Indian meal, (northern yellow is the best,) one pound of beef suet, skinned and chopped fine, one pound of dried currants, one teaspoonful of super carbonate of soda.

Ivory Pudding.—One cup raisins, one cup chopped suet, one cup milk, one cup molasses, three cups flour, one teaspoonful soda. Boil or steam three hours.

Lemon Pudding.—No. 1.—The ingredients are: One pound of butter and one pound of sugar, beat to a cream, ten eggs beat very light, the rind of one lemon thoroughly grated, the juice of one lemon, one

wineglassful of wine, one of brandy and one of rose water. Beat the ingredients well together, and bake the pudding in puff paste in a quick oven for half an hour. This quantity of material is sufficient for four puddings.

No. 2. Six ounces butter, six ounces sugar, one lemon, one glass of rose water, four eggs; beat butter and sugar to a cream; grate the rind of lemon, and squeeze in the juice; add rose water, and beat all up; eggs last.

No. 3. Beat up the whites and yolks of five eggs separately; mix them and eight tablespoonfuls of powdered sugar, two tablespoonfuls of powdered crackers, *sifted*, the grated rind and juice of two lemons; put this in a dish lined with thin paste. Milk added before the mixture is put in the dish improves it.

No. 4. Take the yolks of six eggs well beaten, with a quarter of a pound of sugar; take a quarter of a pound of butter melted in as little water as possible; be careful not to oil it; keep stirring it till cold; then mix all together with the juice of two lemons, and the peel grated in. Cover your dish with a thin puff paste, pour in the mixture, and bake for half an hour.

No. 5. To be eaten cold without any sauce: Two large lemons. One pound of loaf sugar, or light brown sugar will do very well. Four ounces of butter. One pint of cream or milk. Eight eggs. Grate the rind of the lemons. Squeeze all the juice. Mix the butter and sugar thoroughly together—beat the eggs well, and add the juice the last thing—a little salt. Bake three-quarters of an hour in a moderate oven.

Rhubarb Pudding.—Select good, fair sized rhubarb stocks; cut them into lengths, say eight inches long; remove all that is stringy of the bark, then lay out on the table a clean towel or any white cloth; place a cut of the plant at one end and roll the cloth over it. Then add another stock, and make another roll. And continue until you have rolled up a dozen rhubarb stocks, each one separated from the other by a thickness of cloth. Tie the roll tightly, and boil briskly fifteen minutes, in just water enough to cover.

Have ready a batch of dough, made up exactly as for short, light biscuit. Roll out a large sheet of the dough as thin as pie crust, and your rhubarb being ready, place a stock of it carefully on the dough, sprinkle it liberally with fine white sugar, and roll the dough over it. Proceed thus until the stocks are all rolled in just as they were in the cloth. Then you require to have an extra coating of one thickness as an envelope, and place the roll in a wide-mouthed pudding bag, which

tie; place in a steamer, and steam away as vigorously as you will for an hour and a half.

The pudding is of course to be served hot, and may be eaten with any of the ordinary sauces.

Cocoanut Pudding.—The ingredients are: Half a pound and two ounces of sugar, the same quantity of butter beaten to a cream, the white of ten eggs beaten to a froth, half a pound and two ounces of grated cocoanut, one wineglassful of wine, and the same quantity of brandy and rose water. Put the ingredients together, keeping them moderately warm whilst beating them. Bake the puddings in an oven. This recipe is sufficient for three puddings.

Almond Pudding.—Ingredients: One pound of butter, one pound sugar, half a quarter of a pound of blanched almonds, pounded fine, one glassful of brandy, one glassful of wine, one glassful of rose water, and five eggs, well beaten. Add half the rose water to the almonds while bruising them. Bake the pudding in a quick oven.

Snow Ball Pudding.—Pare and core large mellow apples, and inclose them in cloths spread over with boiled rice, and boil one hour. Dip them in cold water before turning them out. They may be eaten with syrup, sugar or sweetened milk.

Transparent Pudding.—Beat six eggs very light, stir into it six cups of powdered sugar and one of butter—set the dish with this mixture in a vessel of boiling water, and stir while it cooks until it looks clear. Fill plates with this and bake nicely. There should be paste under or around this. The juice of one lemon or orange to each of these puddings will make it lemon or orange pudding, and with the lemons will be needed more sugar.

Nunnerly Pudding. One-half pound of raisins chopped, one pound of suet, four tablespoonfuls moist sugar, four ditto flour, and four eggs. To be well boiled and served with wine or brandy sauce.

Tomato Pudding.—Take ripe tomatoes, scald and skin them, pour a little sweet cream in the bottom of a pan, then put in a layer of tomatoes, sprinkle them with sugar, then put over them slices of bread, then over the bread another layer of tomatoes, and so on till the pan is full. Cover the last layer of bread nicely with tomatoes, then bake an hour and a half. To be eaten with sweetened cream if you like.

Boiled Pudding.—Soak some bread in one quart of good milk, add six eggs, well beaten, a little salt and as much flour as you think will make it thick enough. Put it into a bag and boil it an hour. Raisins may be added if you like them. Serve it with whatever sauce you like.

Balloon Pudding.—To one square baking tin use four eggs and three tablespoonfuls of flour, well beaten together; a little salt; then fill up with sweet milk. Bake fifteen minutes in a quick oven. Serve with sweetened cream or any sauce von choose. It can be made with three eggs and four spoonfuls of flour.

Green Corn Pudding.—Grate the green corn from twenty-four ears—to this add one quart of milk and three eggs, one tablespoonful of sugar, half a teaspoonful of salt. Now, this must be varied according to the age of the corn; if the corn is old add more milk or take less corn. Bake in pie dishes, till of a proper consistency.

Another.—From the *Am. Agriculturist*: Take twelve good sized ears of corn, grate or shave it off thin, add it to two quarts of milk, one cup of sugar, a small piece of butter, two eggs well beaten, one teaspoonful of salt, one of saleratus, and spice with nutmeg. Bake three hours.

Solon Robinson's Pop Corn Pudding.—Crush popped corn with a rolling pin on a table, and then grind it into coarse meal in a common coffee mill: or in a mill of large size, it may be ground at once without rolling. One pint of corn will make about sixteen pints when popped, and this will measure about eight pints when ground. To make pudding: Mix five pints of the meal with four pints of sweet milk, place it where it will warm slightly, and let it soak an hour or two. Then let it cool, and add two eggs, sugar, raisins, and spice as for a rice pudding. Set it on a hot stove and boil a few minutes, stirring it several times to get the meal well mixed with the milk. Then bake it about an hour, and serve while hot.

Indian Pudding.—One-half pint Indian meal scalded by one pint boiling milk, one large tablespoonful flour dissolved in a pint of un-boiled milk, one tablespoonful ginger, one cup molasses, two eggs, one half cup chopped suet. Bake in a hot oven.

Plain Indian Pudding.—From the *Am. Agriculturist*: Place two quarts of milk in a vessel over the fire; into this stir slowly a cup of Indian meal and one cup of molasses, and butter the size of an egg. As soon as it boils pour the whole into a baking pan. When cold add two eggs, well beaten, and bake two hours.

Boiled Indian Pudding.—Take one quart buttermilk, two eggs, one teaspoonful soda; add meal enough to make it a thick batter. Tie it tightly in a bag. Drop it in a kettle of boiling water, and let it boil one hour. Eat it with sauce to suit the taste.

Excellent Indian Pudding.—Take a pint and a half of sweet milk; put it on the fire; when it boils, stir in a pint of meal; then take it

off; put in a teacupful of sour cream, with half a teaspoonful of soda, saleratus will do; beat three eggs; when it is cool enough not to cook the eggs, put them in; put in a handful of ripe fruit—currants, cherries, plums, or something else; then stir in flour enough for a thick batter, and bake it three quarters of an hour. Either put in three tablespoonfuls of sugar, or eat it with sweetened cream. The former is preferable. An Ohio farmer's wife warrants this.

Pound Pudding.—Take half a pound of fresh butter and an equal weight of sugar; beat the butter to a cream; then add six very well whisked eggs, half a pound of flour, four ounces of currants, two ounces of candied lemon peel, shred fine, and a little lemon juice. Beat all together for a quarter of an hour; put it into a buttered mould, and boil it for two hours and a half.

Raisin Pudding.—Mix together half a pound each of stoned raisins, chopped suet, and bread crumbs; add four well beaten eggs, a teacupful of milk, a little salt, and a spoonful of grated ginger. Boil it for four hours in a buttered mould or floured cloth. Pour a little brandy over it before serving.

Vermicelli Pudding.—Boil four ounces of vermicelli in one pint of new milk, with a stick of cinnamon, until it is soft. Then add one-half pint of thick cream, one-quarter pound of butter, one-quarter pound of sugar, and the yolks of four pounds of eggs. Bake in an earthenware dish without paste.

Plum Pudding.—One teacup of brown sugar or molasses, half a teacup of butter, melted and stirred into the sugar, one teaspoonful of cinnamon, one teacup of milk, sweet or sour, one heaping teaspoonful of soda, in the milk, two teaspoonfuls cream of tartar, stirred into the milk, and, when foaming, mix with the sugar and butter. One pint of seeded raisins, and flour enough to make it as stiff as pound cake. Put in a buttered tin, and steam it two and a half hours.

Another.—Beat ten eggs very light; stir in it a teacup of powdered sugar; mix in one pound of finely shred beef suet, or butter. Soften a pint of finely grated bread crumbs in a pint of fresh milk; stir them in the batter; also a half pint of flour, two large tablespoons of powdered cinnamon, mace, and nutmeg, mixed. Lastly, mix in one pound of best raisins, stoned and clipped up, one of Zante currants, dredged with flour. Put into a mould that will allow swelling, and boil or bake. Serve with fine sauce.

Another.—One pound best muscatel raisins, carefully stoned and chopped a little on the board; one pound currants, washed and pick-

ed; one-fourth pound candied lemon peel, one-fourth pound candied citron; one-fourth pound sweet almonds, blanched and chopped fine, half pound flour, half pound biscuit powder, one pound and a quarter of sugar, nutmeg and mixed spices to taste, half a teaspoonful of carbonate of soda, eight eggs, well beaten, a gill of old ale. Then take a little milk in a saucepan and put into it half a pod of vanilla. Let it simmer on the hob with the lid closed until the pod is quite soft. Take out the pod and mince it small with a sharp knife, and put it into a mortar with a little of the milk and bray it until reduced to a paste, which return to the milk and pour into the pudding. Just before putting the pudding on give it a good stir, and mix in a full quarter of good brandy. Boil it for eight hours.

Another.—Three cups of bread crumbs, one cup flour, one of brown sugar, one of finely chopped suet, one of chopped raisins, one of milk, a little salt, one teaspoonful of soda, two of cream of tartar. Boil from three to four hours in a cloth or mould.

Rich Plum Pudding.—Stone carefully one pound of the best raisins, wash and pick one pound of currants, chop very small one pound of fresh beef suet, blanch and chop small or pound two ounces of sweet almonds, and one ounce of bitter ones; mix the whole well together with one pound of sifted flour, and the same weight of crumbs of bread, soaked in milk, then squeezed dry and stirred with a spoon until reduced to a mash, before it is mixed with the flour. Cut in small pieces two ounces each of preserved citron, orange, and lemon peel, and add a quarter of an ounce of mixed spice, quarter of a pound of moist sugar should be put into a basin with eight eggs, and well beaten together with a three-pronged fork; stir this with the pudding, and make it of the proper consistence with milk. Remember that it must not be made too thin, or the fruit will sink to the bottom, but be made to the consistence of good thick batter. Two wine-glassfuls of brandy should be poured over the fruit and spice mixed together in a basin, and allowed to stand three or four hours before the pudding is made, stirring them occasionally. It must be tied in a cloth, and will take five hours of constant boiling. When done turn it out on a dish, sift loaf sugar over the top, and serve it with wine sauce in a boat, and some poured round the pudding.

The pudding will be of considerable size, but half the quantity of materials, used in the same proportion, will be equally good.

A Cheap Plum Pudding.—One teacup of chopped suet, one do. chopped raisins, one do. molasses or sugar, one do. sour milk, three do. flour, one teaspoonful salaratus, one tablespoonful ground cinna-

mon, half teaspoonful ground cloves. Boil it three hours. Highly recommended.

Another Plum Pudding.—Two pounds of currants, one pound of raisins, two and a half ounces of flour, one and a quarter ounce of beef suet, half a pound of moist sugar, four eggs, one ounce citron and lemon peel each, cinnamon, cloves, and mace, wine and brandy a tumbler full. To be boiled at least nine hours.

The brandy sauce is made with thick melted butter, to each half pint of which a gill of brandy and two ounces of lump sugar are added. Some prefer the sauce made with sherry in the same proportion as brandy.

Christmas Plum Pudding.—A pound of suet, cut in pieces not too fine, a pound of currants, and a pound of raisins stoned, four eggs, half a grated nutmeg, an ounce of citron and lemon peel, shred fine, a teaspoonful of beaten ginger, half a pound of bread crumbs, half a pound of flour, and a pint of milk; beat the eggs first, add half the milk, beat them together, and by degrees stir in the flour, then the suet, spice, and fruit, and as much milk as will mix it together very thick; then take a clean cloth, dip in boiling water, and squeeze dry. While the water is boiling fast, put in your pudding, which should boil at least five hours.

Old English Christmas Plum Pudding.—To make what is termed a pound pudding, take of raisins well stoned, currants thoroughly washed one pound each; chop a pound of suet very finely, and mix with them; add a pound of bread finely crumbed and just flour enough to chop your suet, three ounces of sugar, one ounce and a half of grated lemon peel, a blade of mace, half a small nutmeg, one teaspoonful of ginger, half a dozen eggs well beaten; work it well together, put it into a cloth, tie it firmly, allowing room to swell and boil not less than five hours. It should not be suffered to stop boiling.

A Rich Christmas Pudding.—One pound of raisins, stoned, one pound of currants, half a pound of beef suet, quarter of a pound of sugar, two spoonfuls of flour, three eggs, a cup of sweetmeats, and a wineglass of brandy. Mix well and boil in a mould eight hours.

Another Good Christmas Pudding.—One pound of flour, two pounds of suet, one pound of currants, one pound of plums, eight eggs, two ounces of candied peel, almonds and mixed spice according to taste. Boil gently for seven hours.

A Cherry Stack.—Wash and stone as many good, ripe cherries as the size of your stack will require; then roll out as nearly round as

possible, a quarter of an inch thick and six inches in diameter, a sheet of dough, shortened and made up as for pie crust.

Spread a layer of cherries over the surface of a sheet of dough, leaving a margin of half an inch or so all round the edge. Roll out a second sheet an inch less in diameter than the first, cover the cherries with it, and turn up and lap down the lower sheet over the edge all round of the upper one. Spread with cherries and cover, as in the first instance, diminishing each successive crust, until you have built up a *stack* eight inches high and three in diameter at the apex. Draw on over the stack a cotton cap, shaped to fit, place the fabric in a steamer, and cook two hours. Eaten with any of the pudding sauces, the cherry stack is very good.

DUMPLINGS.

These are made by enclosing fruit in sheets of pastry, rolled out quite thin. Cut out your paste with a large cutter, and draw up the dough around the fruit. Enclose in little nets, if to be boiled. Or roll out a sheet of crust, spread it with fruit reduced to a pulp, roll up and fasten at each end. You may boil or bake your dumplings. If to be baked, prepare a rich sauce of butter and sugar and pour over the dumpling before you bake it.

In boiling dumplings, or any kind of paste, the cover should never be removed, nor the water allowed to cease boiling until the paste is done, when it should be taken off before it becomes soaked and heavy.

Apple Dumplings.—One quart of flour, a piece of butter the size of an egg, three teaspoonfuls cream of tartar, one teaspoonful soda. Mix with sweet milk. Stew some apples. Put in and steam twenty minutes.

Peach Dumplings should be *steamed* instead of stewing, as that would break them. Serve with common sauce, or lemon sauce, of one lemon, cut fine, one cup butter, and a large cup sugar.

Another.—Stew fine, ripe peaches, (yellow preferable,) until thoroughly tender. Enclose each in a rich paste, rolled half an inch thick. Bake half an hour.

Currant Dumpling.—Pick and wash a pound of currants, dry them and lay them on a plate before the fire. Chop a pound of suet very small, and put it into eight spoonfuls of flour, with two teaspoonfuls of salt and three of ginger. Now add the currants, and mix all well together; then beat up four eggs with a pint of milk; add this by degrees to the other ingredients, and make it into a light paste; roll

it up into balls as large as a turkey's egg, with a little flour. Flatten them a little, and put them into boiling water. Move them gently, that they may not stick together. Half an hour will boil them.

Yeast Dumpling.—Make a light dough, as for bread, with flour, water, salt and yeast; cover it with a cloth, and set it before the fire for half an hour. Then have a saucepan of boiling water; make the dough into round balls the size of a hen's egg, and put them in; be sure to keep the water boiling all the time, or they will sink and be heavy. When they are done enough, which they will be in rather less than ten minutes, take them out with a slice, put them into a hot dish, and send up melted butter and sugar in a boat. It will save much trouble if you send to the baker's for the dough; you will then have only to boil it in small pieces, as above.

Apple Slump.—Place stewed apples in a round pie pan an inch thick; make a crust of flour, sour milk, a piece of lard the size of a walnut, one small teaspoonful of soda. Roll out the crust half an inch thick, place it on the apples, and steam it an hour. Then turn it out on a plate, bottom side up, and serve up with sweetened cream or butter. Berries may be used in the place of apples.

Souffle.—Beat one dozen eggs very light; mix in it one ounce powdered sugar, half pound fresh butter, and a pint of cream. Stir in twelve heaping tablespoons of flour. This should rise to an almost airy lightness. Substituting milk for cream, and beef suet for butter, makes a famous family pudding. A heaping spoonful of suet will be enough.

Bath Patties.—Dissolve three ounces butter and three ounces loaf sugar in half pint milk. When cold, stir in three ounces flour; but care must be taken to have it smooth. Add to it four eggs, well beaten. Butter your cups, but do not put your ingredients into them till the instant before going to the oven. Serve with wine sauce. Some currants may be added.

GRAVIES AND SAUCES.

These indispensables to a fine dinner are what chiefly give to fish, meat and poultry their zest.

Gravy is the juice that exudes from flesh in cooking. It should be carefully skimmed of the clear grease that floats on it, and reduced by stewing down. Meat does not always yield enough gravy, and it is then made of the trimmings from the same dish it is to be served with,

or many times from some other flesh. The stock of beef soup is often used as the foundation of many sauces and gravies.

The trimmings of beef or veal, and the necks or giblets of fowls are used respectively to make gravy. They are put into a saucepan with a lump of butter and some savory herbs, stewed low, the clippings from the fowl added, and reduced to the desirable quantity and consistence. The giblets are hashed up and served in the gravy. If this is stewed until the meat is brown, it is called brown gravy, otherwise white sauce.

Clear gravy is made by boiling the meat a nice brown before stewing. Lemon juice, wine, or catchup is often added to rich gravies. They should not be when there is a sauce as well as the gravy accompanying the meat.

Drawn Butter.—Rub to a cream an ounce of flour and one of butter. Stir in it two tablespoons of water, and continue to stir it on the fire until it has simmered a quarter of an hour. Melt in it now the third of a pound of fresh butter. If it inclines to be oily, stir in a spoonful or two of cold water. This is the foundation of many sauces, both for meats and puddings.

Onion Sauce.—Boil some nice white onions in milk and water, chop them fine, and mix into drawn butter. The sauce should not be sloppy.

Another.—Mince some large white onions, stew in butter until well colored, stir in a little flour, shake the stewpan over the fire for three or four minutes, pour in only as much gravy as will leave the sauce tolerably thick. Season.

Young Onion Sauce.—Peel a pint of button onions, and put them in water till you want to put them on to boil; put them into a stewpan with a quart of cold water; let them boil till tender; they will take, (according to their size and age,) from half an hour to an hour.

Celery Sauce.—Chop some celery fine, stew until soft, and drain it. Moisten it with drawn butter freely, and season with salt and pepper to the taste.

Another.—Pick and wash two heads of nice white celery; cut it into pieces about an inch long; stew it in a pint of water and a teaspoonful of salt till the celery is tender; roll an ounce of butter with a tablespoonful of flour; add this to half a pint of cream, and give it a boil up.

Tomato Sauce.—A nice sauce of tomatoes is made by reducing this vegetable to a pulp, and seasoning with butter, sugar, pepper, and salt, and a few corns of alspice. This is served hot with fresh meats.

But the following receipt may be used in preparing winter stores, and it will keep without fail if properly prepared;

One peck of tomatoes, one ounce of cloves, one ounce of cinnamon, two tablespoons of salt, two tablespoons of ground black pepper, one quart of vinegar.

Peel the tomatoes and boil very tender; then drain them from the juice. Boil the juice with the vinegar and above spices, and five pounds of best brown sugar, until it is very thick; pour it scalding hot over the fruit, and keep closely covered.

Mustard Sauce.—Into one quart of vinegar stir a teacup of melted butter, one of good jelly, six well beaten eggs, and two heaping tablespoons of flour of mustard; pepper and salt to taste. Boil this until it has the consistency of custard. If you use acid jelly, use sugar, also, until the biting quality of the mustard is lost. This rule holds good wherever mustard is employed. Mustard sauce is particularly nice for pic-nic and similar uses. It keeps well for some time in winter, or in the ice chest in summer.

Wine Sauce.—Into one pint of claret, or any wine you like, put a quarter of a pound of butter, a spoonful of whole alspice, a large teacup of acid jelly, and a teacup of brown sugar. Stew together until the taste of the spices, if you use several kinds, is perceptible; strain into a sauceboat and serve hot.

Fruit Sauce.—These are simply stewed fruits. Dried fruits are used when fresh are not on hand. Sugar enough to make them agreeable is always used, and they should be stewed low, so that they will not be sloppy, and the juice be thick and rich. Those of no distinct flavor of their own have spices or essences used in them—thus, lemon or orange peel flavors apples very nicely.

Mint Sauce.—Pick fresh mint from the stalks, mince it fine, mix with it some powdered sugar, and moisten it with the best vinegar. Served with lamb.

To obtain Mint Sauce at any Season of the Year.—When mint is green and plentiful, cut it up fine, put it into bottles. Fill the bottles with vinegar, and cork closely. The sugar can be added when required for use. No one can tell the difference of mint so prepared from that newly gathered from the bed.

For those who like mint sauce, the above may be eaten with lamb or mutton chops.

To obtain Herbs of the Finest Flavor.—When herbs are to be kept for flavoring dishes, it is obviously of the first importance that they should be gathered at the right time, and dried in the best manner.

Herbs should be gathered just before they begin to flower, on a dry day, before the sun has been long upon them. When intended for preservation they should be cleaned from dirt and dust, and dried gradually in a cool oven. The leaves should then be picked off, pounded in a mortar, passed through a hair seive, and the powders be preserved separately in well stopped bottles.

Oyster Sauce.—Drain the oysters; put the liquor from them with sufficient water to stew them in; add a few blades of mace, a few shreds of lemon peel, and some butter rolled in flour. When the liquor boils, put in the oysters and stew done; before taking up, add as much fresh milk as will make up the quantity of sauce.

Egg Sauce.—Set a saucepan over the fire, with a pint of fresh milk in it, seasoned with a little pepper and salt. When it boils stir in a lump of butter and four half beaten eggs. Allow the eggs to clot if you like, by only occasionally stirring, scraping the eggs from the sides and bottom of the saucepan in the operation—or you may make the sauce smooth like custard, and cut up hard boiled eggs around the fowl after the sauce is poured over it. Egg sauce is oftener made by stirring hard boiled eggs finely minced, into drawn butter or cream, seasoning with pepper, salt and savory herbs.

Another.—This agreeable accompaniment to roasted poultry, or salted fish, is made by putting three eggs into boiling water, and boiling them for about twelve minutes, when they will be hard; put them into cold water till you want them. This will make the yolks firmer, and prevent their surface turning black, and you can cut them much neater: use only two of the whites; cut the whites into small dice, the yolks into bits about a quarter of an inch square; put them into a sauce boat; pour to them half a pint of melted butter, and stir them together.

Sweet Egg Sauce.—Put the yolks of four hard boiled eggs into a mortar with an equal weight of fresh butter and sugar; beat it smooth, then dilute it with a sufficiency of either milk or white wine, as agreeable; add the grated rind of half a lemon; give it a boil, and serve.

Horse Radish Sauce.—Into a teacup of scraped horse radish, mix two tablepoons of powdered sugar, a teaspoon of mustard, and best vinegar enough to cover it. Bottle closely and use with cold meats. Pepper and salt to taste. If you wish it very rich, beat the yolks of a couple of eggs and mix with milk.

Orange Sauce.—Rub together two ounces of butter and one ounce of flour; then put it into a saucepan with the juice of four oranges,

the shred rind of half a one, and two tablespoonfuls of loaf sugar. When the butter is melted, it is done.

Cold Orange Sauce.—Beat to a cream one teacup of butter and two teacups of fine white sugar ; then stir in the grated rind of an orange and the juice of two ; stir until all the orange juice is absorbed ; grate nutmeg upon the sauce and serve in a flat dish.

Lemon Sauce.—Pare a lemon, and cut it into slices ; divide these into dice, and put them into a quarter of a pint of melted butter. Some cooks mince a bit of the lemon peel (pared very thin) very fine, and add it to the above.

Mock Caper Sauce.—Cut some pickled green peas, French beans, gherkins, or nasturtiums, into bits the size of capers ; put them into half a pint of melted butter, with two teaspoonfuls of lemon juice, or nice vinegar.

SALADS.

Salads may be of lettuce, endive, celery, corn salad, chopped cabbage, or of cold beef, veal, mutton, or fowl, chopped into small pieces and mixed with some of the vegetables named, or even cold boiled potatoes or beets. Parsley and onions are also used. For dressing use simply vinegar and sugar, or two parts of olive oil, or melted butter, to one of good vinegar, adding salt and pepper to taste, and mustard if desired, also hard boiled eggs, sliced.

CUSTARDS, CREAMS AND SWEETS.

CUSTARD.

Allow four eggs to each pint of fresh milk. Reserve part of the whites to froth and lay on top. Beat the eggs smooth, stir them in the milk—sweeten with best loaf sugar. Set a bucket with the mixture in a pot of boiling water. Stir until done and remove from the fire instantly. The same mixture may be baked.

Lemon Custard.—Beat the yolks of eight eggs until they become as white as milk, and then add to them a pint of boiling water, and the grated rinds of two lemons. Sweeten to your taste and stir the mixture over the fire until it seems to be thick enough for use, and then add in a large wineglassful of rich wine and half the quantity of bran-

dy; give the whole a scald, and pour it into cups. To be served cold.

Chocolate Custard.—A quarter of a pound of spiced chocolate, one quart of milk, two eggs, one cup of sugar. Grate the chocolate, and stir into the milk when nearly boiling. When it begins to thicken, add the eggs and sugar. Let it boil a few minutes, stirring it constantly.

Another.—From the *Am. Agriculturist*: Three ounces chocolate, three pints milk, six eggs, four tablespoonfuls powdered white sugar, and two ditto brown sugar. First prepare a soft custard with the milk, the beaten yolks of six eggs, and the white of one. While this is cooking, grate the chocolate and dissolve by pouring over it a cup of warm water, and then heat it up to the boiling point, and sweeten with brown sugar. When cool, mix it with the custard, and flavor with a teaspoonful of extract of vanilla. Put the whole in a suitable dish and pour over the top the remaining whites of the eggs beaten to a stiff froth and sweetened with white sugar. Brown it lightly in a moderate oven. It should be brought to the table as cold as possible and is excellent.

Potato Custard.—By N. Anderson, Franklin Co., Pa., in the *Am. Agriculturist*: One pint mashed potatoes, two cups sugar, one of butter or lard, four eggs, nutmeg, thin it with milk, and bake.

Float.—From the *Am. Agriculturist*: Take one quart of new milk and five eggs; beat the whites to a stiff froth, have the milk ready boiling in a skillet and with a spoon place the whites in it, turn them over quickly, then lift them out carefully, and place them on a plate. Now beat the yolks well, add one large spoonful flour, two tablespoonfuls of sugar and some grated nutmeg or lemon, and two spoonfuls of cold milk; stir them all together, then pour it into the milk, stirring it to keep it smooth. Let it boil, turn it out in a deep dish, place the whites on it, and it is now ready for use. A few drops of jelly or colored sugar on the whites improves the looks.

Floating Island.—Beat the white of two eggs so light that a spoon will stand in it, and by degrees beat in two tablespoonfuls of some favorite jam, two tablespoonfuls of currant jelly, and five tablespoonfuls of loaf sugar. Drop the float upon the surface of a quart of milk poured into a deep glass or china dish. The milk must be sweetened and flavored with a small portion of wine.

Blanc Mange.—Dissolve an ounce and a half of gelatine in a pint of sweet cream. Sweeten, flavor and boil it. Put a little in a cup on some ice and salt, and if it will mould, it is done. Color or use white.

Another.—To one package of gelatine add two quarts of milk. Season and sweeten to the taste.

Delicious Blanc Mangé.—Put one ounce of Cooper's izinglass in a little water over the fire until it is dissolved. Then sweeten one quart of cream, add a little lemon or vanilla—whip it. Strain the izinglass on the cream, wet your moulds in cold water, fill them, and set them away until they congeal.

Arrowroot Blanc Mangé.—Mix three tablespoonfuls of arrowroot in milk, in the same manner as though you were preparing starch. Add afterwards a quart of cold milk, sugar to your taste, a few chopped almonds, and some grated lemon peel. Put it on the fire, and stir it until it thickens. Pour into a mould and turn it out when cold.

Charlotte Russe.—Make one pint of rich custard; when cold stir in an ounce of izinglass dissolved in a half pint of water and reduced to a stiff jelly; sweeten with best sugar; mix a glass of wine, the juice of a couple of lemons, and a pint of frothed cream together; stir them into a custard when cool. Mould in blanc mange moulds, or cut out some nice shaped sponge cakes into shells, and pour the mixture in.

Another.—One ounce of gelatine. Six ounces sugar. Yelk of four eggs. One quart of cream. One pint of milk. Dissolve a little less than one ounce of gelatine in a pint of lukewarm milk—then scald it and put it upon the beaten eggs and sugar—stir them well together—set aside till it becomes lukewarm—then season it well with vanilla. (Some use brandy also.) Whip the cream while the mixture is setting, and skin the froth as it forms. The day before make sponge cake—the weight of eggs in sugar, and half the weight in flour.

Currant Cones.—Prepare rice blanc mange, or it will do just as well to cook rice in milk until it is so thoroughly done that being placed in a strong cloth, the material can be squeezed by the hand, into a soft pulpy mass having no whole grains in it. This having been done, thin it if necessary, with new milk, to the consistency of a batter made for griddle cakes and then stir in nice, ripe red currants, one quart of fruit to two of batter. Fill the small sized *barroom*, or other very small bottomed tumblers with the material; set the tumblers in a dish and the dish into a kettle of water, and boil twenty minutes. Turned out and served either hot or cold on suitable dishes, the cones bottom upwards, you have a very pretty and palatable dessert for the dinner table.

Scalded Cream.—From the *Am. Agriculturist*: Steam the milk into tin pans and let it stand ten or twelve hours. Then carefully place it on the stove, or to prevent the milk from burning, on a pot of boiling

water, until it is scalding hot, but not made to boil. Carefully carry it back to the dairy or milk room, and let stand ten or twelve hours longer, skim it, and you will have cream equal to any in Cornwall. This cream finds a ready market in London at the same price as butter.

Spanish Cream.—Half a pint of cream, same of new milk, three ounces of rice flour, a tablespoonful of orange or peach-flower water; sweeten it to taste. Boil till it is stiff, stirring it constantly, and when it will leave the side of the pan, put it into a mould which has first been put in cold water.

Snow Cream.—To one pint of cream add four ounces of sugar, one gill of lemonade, and the whites of two eggs, well beaten; whisk the whole to a froth, and serve in a cream dish.

Velvet Cream.—Dissolve half an ounce of isinglass in a teacupful of white wine, one pint of cream, the juice of a large lemon. Sweeten the cream to your taste, and when the isinglass is dissolved, put in the juice to the cream, then pour the wine to that. Stir it frequently until it begins to thicken; pour it into a mould.

Strawberry Cream.—Mash the fruit gently, drain it on a sieve, strewing a little sugar on it when well drained, (without being pressed;) add sugar and cream to the juice, and, if too thick, add a little milk; whisk it in a bowl, and, as the froth rises, lay it on a sieve, and when no more will rise, put the cream in a dish and lay the froth upon it.

Honeycomb Cream.—Take the juice of one fine lemon and two Seville oranges; make it very sweet; put it into a glass dish, and set it upon the ground; boil a pint of cream, and put it into a teapot made very hot. Pour the cream upon the juice, holding the pot as high as possible; let it remain quite still till cold. A little orange or rose water might be added to the juice.

How to make Ice Cream.—Ice cream is usually considered a luxury not to be indulged in by farmers' families. It is set down as a city dish, though most of the articles used in its preparation are obtained from the country. It is not generally known that the best ice cream can be made without a costly freezer in any family where ice and milk are at hand. To make it, proceed thus: Take two quarts of fresh milk—if a little cream be added, all the better, though ice cream as ordinarily made is innocent of cream. Scald the milk, stirring in three tablespoonfuls of corn starch or arrow root to give it body. These may be omitted if not at hand. Stir well to keep from burning. Beat up from four to eight eggs, according to convenience,

or as a rich dish is wanted, and pour the scalding milk on the eggs, stirring well. When cold, add sugar and essence of lemon, or extract of vanilla to suit the taste. A very little salt also improves it. Pour the cooled contents into a deep tin pail, or can holding about three quarts; put on the cover, and set in an ordinary wooden water pail. Pound up ice to the size of hen's eggs and less—some of course will be quite fine—pack it around the tin can, mixing in about one pint of either medium or fine salt. Pack this till it reaches nearly to the top of the can containing the mixture to be frozen, but be careful none enters it. Now move the tin can or pail around by means of its bail, lifting the cover occasionally to scrape off the frozen cream on the inside, so that other portions may come in contact with the freezing surface. From fifteen to twenty minutes will be sufficient, and the dish may be served up at once, or set away, without removing from the wooden pail, in a cool place, for several hours, covering with a flannel cloth. Try it, and see if you need hereafter forego the ice cream because no freezer is at hand.

Another Way.—Take one quart of new milk, one pint of thick sweet cream, three eggs, beat thoroughly, two tablespoonfuls of extract of any kind you prefer—vanilla, lemon, or any other. Some use the vanilla bean. Have the sugar powdered; add the sugar to the mixture in such a proportion as will make it sickishly sweet, as a part of it freezes out. Some put in a small quantity of arrow root, or corn starch, but that is unnecessary if you have good cream and plenty of eggs. Put the whole in a preserving kettle, with a vessel of hot water under to prevent it having a burnt taste; let it come to a scalding heat; then strain it into a freezer. Have ice pounded, (snow is better;) put a quart of coarse salt with two of snow or ice. Mix the snow and salt well together and press around the freezer. Stir with a wooden spoon until it commences freezing around the sides; then cover and only stir it occasionally. Put a hot towel around it to take it out; dip the towel in hot water, and it will slip from the freezer easily.

To Make Artificial Honey.—If nicely made, it can hardly be distinguished from the honey of bees. Take of soft water, six pounds; white moist brown sugar, twenty pounds; pure bees' honey, three pounds; cream of tartar, eighty grains; essence of roses, twenty-four drops. Mix in a brass kettle; boil five minutes; take it off, and add the whites of two well beaten eggs. When almost cold, add two pounds more bees' honey. A decoction slippery elm bark will improve the honey if added while cooling.

Another Way.—To ten pounds crushed sugar, or good coffee sugar, add three pints of water; scald and skim; then add three pounds good strained honey, four grains cream of tartar, and ten or twelve drops of the essence of peppermint. Mix the whole intimately and it is ready for use. Some prefer this mixture to pure honey, as it can be eaten by most persons who cannot eat honey without injury.

Another.—To ten pounds refined sugar add four pounds hard water, place it over a fire, stirring it occasionally until quite hot, then remove it from the fire, and add immediately one pound of honey in the comb. When half cooled, add another half pound, when cold, add ten drops essence of peppermint—then strain it.

French Honey.—One pound of white sugar; six eggs, leaving out the whites of two; the juice of three or four lemons, and the grated rind of two, and a quarter of a pound of butter. Stir over a slow fire until it is about the consistency of honey.

To Keep Honey.—Honey fresh from the comb is a clear yellow syrup, without a trace of solid sugar in it, but upon straining it gradually assumes a chrysaline appearance, and ultimately becomes a solid mass of sugar. Inclose fresh honey in stoppered flasks, and keep it in perfect darkness, and it will remain perfectly liquid.

Mr. Sands, of Orange Co., N. Y., says in the *Scientific American*, Heat strained honey to the boiling point, and store it in covered jars, when it will keep without candying. To prevent danger of burning, set the vessel in which it is to be heated into another containing water.

Dampness will cause honey to become thin and watery.

SUGAR AS FOOD.

Puddings and fruit tarts, says Mr. Bridges Adams, the English physiologist, are not simple flatteries of the palate, but digestive agents; provided, always, they are not themselves made of rebelliously indigestible materials. He alludes to the fondness of artizans for confectionery, and patients just discharged from the hospital asking for sweets in preference to good substantial food, as examples of a correct instinct. There is no doubt that in children, in whom the requirements of growth call for a rapid and efficient transformation of food into tissue, the demands for sweets is very imperious; and parents should understand that the jam-pot will diminish the butcher's bill, and increase the amount of nutrition extracted from beef and mutton.

Sugar is an important article in diet, and an aid to digestion. Though the use of sugar as an article of food seems mainly to supply the carbon used in breathing, yet it undoubtedly contributes also to the use of fat, for during the severe labor of gathering the sugar crop in the West Indies, in spite of the great exertion and fatigue, it is said that every negro on the plantation, every animal, even the very dogs will fatten. Sugar lies under a ban, however, for injuring the teeth.

How Sugar is Made White.—The way in which sugar is made perfectly white, it is said, was found out in a curious way. A hen, that had gone through a clay mud puddle, went with her muddy feet into a sugar house. It was observed by some one that wherever her tracks were the sugar was whitened. This led to some experiments. The result was that wet clay came to be used in refining sugar. It is used in this way: The sugar is put into earthen jars, shaped as you see sugar loaves are. The larger ends are upward. The smaller ends have a hole in them. The jar is filled with sugar, the clay put over the top and kept wet. The moisture goes down through the sugar and drops from the hole in the small end of the jar. This makes the sugar perfectly white.

To Clarify Sugar.—Take the quantity of fine white loaf sugar you intend to clarify, add to it of very clean warm water half a pint for every pound; when dissolved add to it the white of one or two eggs, as the quantity may require, well whipped, put it on the fire, and when it comes to a boil, pour into it an ordinary teacupful of cold water; on its rising again to a boil, remove it and let it settle for twenty minutes; skim the scum from the top, pour off the syrup into a clean vessel with sufficient quickness to leave all the sediment at the bottom, and such steadiness as to prevent any of the latter rising and mixing with it.

Home-Made Candy.—From the *Agriculturist*: To one cup of sugar (New Orleans is best,) add one cup of cider vinegar. If the vinegar be very sour, put in one-third water. Boil fifteen to twenty minutes, then work till white. This is very nice, and when thus made at home you know that it contains no poisonous substance.

Lemon Candy.—Three pounds of brown sugar and three teacups of water; set it over a slow fire for one-half an hour; add a little gum arabic dissolved in hot water; skim it as long as anything rises. when quite clear try it by taking out a little in a saucer; if done, it will snap like glass. Flavor with lemon and cut it in sticks. Peppermint or hoarhound candy may be made in the same way.

RULES FOR MAKING SORGO MOLASSES.

1. Plant the crop on a good, firm, dry, upland soil. If very rich, low or mucky, the growth will be larger, more succulent, and the juice poorer and more watery.

2. Let the land be previously free from the seeds of weeds; for the sorghum, in its early growth, is very small and feeble, and easily smothered down.

3. Plant the seed like common corn, but from twice to three times as thick, in rows only one way, the hills being about a foot apart in the row, or the plants may be in regular drills, but in this case can not be kept clean so easily. A good drill will plant them. The seed should be soaked, so as to come up early. A peck of good seed will plant an acre.

4. Cultivate well and keep the ground clean till the crop is large enough to shade the ground completely, and prevent the growth of weeds.

5. Commence the manufacture by the time half the seeds have become dark brown or black. If begun much sooner, the juice will be poor and watery; if left later, there will be danger of freezing before the work is all completed.

6. Strip off the leaves while the stalks are standing, by striking downwards against them with the tines of a common pitchfork.

7. Draw the stalks on a common two-horse wagon, furnished with a common wood-rack, place the stalks in lengthwise, with the heads even and projecting over behind. At a convenient place, cut these heads off, and leave them in a heap for feeding cattle, and then draw the stalks to the sorghum mill, which should never be more than two or three miles distant, or the expense of drawing will not pay.

8. The best mills sold in market are excellent; but good and cheaper ones may be made by turning rollers of hard wood, and fitting them with iron gudgeons and cog wheels. The iron mills, when the cylinders press closely, press out too much of the solid matter of the stalks, and make a green juice, producing an abundance of scum. It is better not to press so closely, and the wooden rollers answer well for this purpose.

9. As soon as the juice is separated, it should be subjected to boiling without a moment's delay, as it ferments rapidly. The boiling process, which reduces the juice in forming molasses to about one-eighth of its previous bulk, should be perfectly completed in less than

one hour, and the molasses then quickly cooled. No substance whatever need be added to purify the juice during boiling.

10. Excellent pans for boiling may be made of sheet iron, nailed to the lower edges of pieces of plank, each about six inches wide; the sheet iron, being longer than the plank, may be bent up and nailed to the end of the plank, thus forming the ends of the pan. The iron should be secured to the plank by two close double rows of large-headed nails. Two pans should be placed in succession on a long arch or brick-work, so that the juice may flow from one to the other through a tube and stop-cock; or a common faucet may pass through the side plank, and be carried to the next pan below by means of a short tin tube or trough placed under the faucet, and secured by nailing to the wood of the trough below. The arrangement of the pans may be made according to the full directions given in the article on sugar-making, in the *Illustrated Annual Register* for 1863.

11. The skimming, which should be continued without interruption during the boiling, may be easily effected, as follows; take a strip of thin board a few inches wide and half an inch shorter than the inside breadth of the pan; bore a hole in the middle, and insert a light handle nearly as long as the pan. In using it, draw the scum from one end to the other; the last mentioned end being made sloping on purpose to draw the scum up and throw it out. The fire may be slackened at any moment by throwing in refuse stalks.

12. An acre of cane will make two hundred gallons of molasses—in some instances over three hundred have been obtained. One cord of wood will manufacture one hundred gallons of molasses. A one-horse mill and one evaporating apparatus, with three hands in attendance, will manufacture twenty-five gallons in a day. If within a reasonable distance, one team will easily gather and draw the stalks to feed the mill at the same time.

Sorgo Sugar.—The *Scientific American* says: At Berrien, Mich., a barrel of sorgo syrup was stored away some five years ago; it was recently opened, when the contents were found to be dry sugar.

Sorgo Sauce.—From the *Agriculturist*: Put a pint of sorgo syrup on to boil, and then beat three eggs to a froth. As soon as the syrup boils, pour in the eggs, stirring rapidly all the time. Let it boil three minutes, then pour it into a cool dish, and stir in a little good vinegar or lemon juice. When cold, it is a good substitute for apple butter.

Persimmon Syrup.—A southern paper says: "Put the persimmons in a vessel and boil until the saccharine matter is fully dissolved,

which can be told by the coagulation of the fruit; then strain, and boil the liquid to any desired consistency. Superior to sorgo."

HOW TO MAKE MAPLE SUGAR.

The following is from the pen of one who manufactures maple sugar largely in New Hampshire :

We have been in the practice of making annually, in our sugar establishment, from 2,500 to 3,500 pounds of maple sugar; and when we could obtain from two to four cents per pound more than the cost of the best loaf and granulated sugars, we have sometimes sold ourselves so short as to buy for home use a barrel or two of the best granulated sugar. Much depends, however, upon the manner in which maple sugar is made. We make our sugar in this way :—Our buckets and holders are all thoroughly scalded and rinsed previous to setting. Our evaporating pans, of which we use eight, are scraped, washed, and made perfectly clean before use. We then endeavor to gather and evaporate the sap as speedily as possible after it has left the trees, to a consistency a little thinner than molasses. It is then strained and set aside until we are ready to sugar it off. When we commence this process, to syrup enough to make forty pounds of sugar, we add one pint of milk and one or two eggs well beaten and mixed together. Place the syrup over the fire, and when the scum rises skim it off into a vessel for further use. After the skimming is through remove the syrup from the fire and strain it through flannel, to remove all little curds, which, if suffered to remain, would not only injure the quality, but by settling to the bottom, would endanger burning. Now we wash our evaporating pan, return the syrup, and place it over a brisk fire, and evaporate as quick as possible to the proper consistence. If it is to be caked it must be harder than for tub sugar, or to stir off dry. Keep saleratus and all other drugs out of your sugar, if you desire a pure maple taste and a wholesome article. When the season is through, gather your utensils, and scald and scrub every one perfectly clean, if you wish to continue making good sugar in the future. In this order the evaporating pans are excepted, which should be put away in a dry place with the glazed coating on them, which is the best protection from rust.

At one of the fairs recently attended, we saw among the domestic productions some very fine maple sugar, both caked and granular, while near it stood a pleasant old man of seventy-five years, apparently in charge. Cohesive attraction naturally drew us to the sugar,

and the sugar easily led to a short chat with Walter Graves of Leverett, the man above referred to, and the chat unconsciously drew out the following information: two hundred and twenty-five maple trees on his farm yield one thousand pounds of sugar annually. The same sugar orchard yields double the sugar that it did twenty years ago. Trees may be tapped so as to destroy them in one year, or they may be made to last one hundred years. One spout to a tree is in the long run better than six. A tree less than about a foot in diameter is not large enough to tap. The proper depth to bore is about an inch and a half, but never in an old hole, or always at the same height. Trees tapped late in the season run most freely, and so do those tapped in alternate years, and also those standing near springs and brooks. Trees in open fields yield the most sugar. Maple sugar needs remelting in the summer to make it nice, and maple syrup needs occasional scalding in warm weather. Sugar exposed to the light retains its color better than that in the dark. Granulated sugar is made by stirring the sugar when it begins to grain. Careful attention is requisite to successful sugar making. There are trees on Mr. Graves' homestead, in good condition, that have been tapped annually for three-fourths of a century.

A manufacturer of maple sugar tells us that one of the most important points in making a good article of maple sugar, is to convert the sap into sugar as soon as possible after it runs from the trees. It is bad policy to boil the sap over and over, as some do, for twenty-four hours, more or less, as the case may be.

In olden time very little care was taken to save fuel; now, upon many farms where sugar trees abound, the saving of fuel in boiling sap is an important consideration. A valuable improvement for this purpose is described by a sugar maker in St. Lawrence County, N. Y., which he thinks should be more generally known.

Two pans are set in brick or stone work, side by side, one of them a few inches higher than the other, into which the cold sap is put, and when partially boiled, is drawn by a syphon into the lower pan. The furnace door is under one end of the lower pan, and the draft carries the heat to the further end and through an opening in the wall between the pans and along the bottom of that to the chimney, which is just by the side of the fire door. By this plan only a small portion of the heat goes up the chimney; the partially-concentrated sap in the lower pan taking the first, or strongest heat, and the colder sap in the upper pan absorbing most of the remainder. This plan of doubling the fire around in its course under the pans, takes up more heat into

the sap than it does when two pans are set end to end. The saving in fuel is thirty to fifty per cent.

A writer says, that every farmer should plant a tenth of his land with sugar maples. Plant in rows ten feet apart, and cultivate them with corn or root crops.

Who would not plant a maple tree? Look at what one tree may yield:

The *Chronicle*, Warren, Trumbull county, Ohio, states that from a moderate sized tree, standing in open ground, in front of the residence of the Rev. David King, of Vernon, of that county, his wife made thirty-four pounds of very fine sugar this season. It is thought if all the sap had been carefully saved, it would have given forty pounds. Surely, it is worth while to plant such trees as this for shade and ornament.

Joel Woodbury, of Springfield, Mass., gives us the following statement, which he says may be relied upon: Mr. Olney Bates, of that town, has a single sugar maple tree, standing about a hundred rods from the bank of the Connecticut river, from which he has made this year *seventy-five* pounds of sugar. This tree is fourteen feet in circumference two feet from the ground, and twelve feet circumference ix feet from the ground. It was tapped with twelve spiles, leading the sap into six buckets. One day the yield of sap was ten pailfuls.

New Maple Molasses.—A correspondent gives the following: Maple molasses, well made and put up in cans right from the kettle, and hermetically sealed, as you would can and seal fruits, will keep as fresh as when first boiled from the sap, and this is decidedly the best plan for keeping, as when made in cakes, if exposed to the air, it will lose some of the peculiarly delightful flavors for which it is so prized, and is often injured by insects. All this is obviated by canning while hot. To many families who do not make it on a large scale, this need be but little expense, as the cans that have been emptied through the winter can be used until autumn fruits demand them again. Put up your best in this way. Where large quantities are made for market, the buyers must select and can for themselves.

White Maple Sugar.—To make maple sugar white, the sap should be caught in a very clean vessel, (tin is best,) and boiled down in clean iron kettles, or tin, that the syrup may not be colored; strain into tin every night, set it in a cool place until you get enough to "sugar off." Let it settle one or two days; then drain it off, leaving the dregs, and to a pail of syrup add the white of one egg, and five table-spoonfuls of milk, and one-twentieth of a teaspoonful of saleratus,

mixed well together. While boiling, add the above mixture, and stir well half a minute. Let it boil gradually till the scum rises; skim it off, boil down to the thickness of thin honey. After cooling a little, pour it into stone jars; let it stand open till cool without stirring; cover it with a cloth, put on the cover, set it in a cool place, and let it remain six months or a year. It will crystalize on the sides and bottom. If the remainder sours, turn off the molasses into a kettle, add a little saleratus, boil and skim as before, and it will be sweet. Let it cool, and turn it into the jar. Open-mouthed jars should be used. Take out the crystalized sugar, rinse and dry it, and it will be as white as loaf sugar.

PRESERVES, JELLIES AND JAMS.

PRESERVES are made by taking fruit and sugar, pound for pound, and simply cooking them together until the fruit is done.

Jellies are made by squeezing and straining out the juice only of the fruit; then taking a pound of sugar for a pound of juice, and cooking until it jells, which is told by taking out a little on a cold plate.

Jams are made by weighing the whole fruit, washing, slicing, and putting in sufficient water to cook it well; then when cool, rubbing it through a fine sieve, and with this pulp, putting in as much sugar as there was of the fruit only, and cooking it very carefully until the weight of the jam is the same as the fruit and added sugar; the water, you see, is all gone; and this is easily told by having previously weighed the kettle in which you are cooking it. The jam, if nicely done, contains more of the fruit flavor than the jell, and is as valuable as the jell to put into water as a drink for invalids; and better for flavoring syrups for soda fountains, &c. Strawberries, raspberries, blackberries, peaches and pine-apples make very nice jams for flavoring syrups. Much of the flavor of the fruit resides in the skin, pits, &c. And jams made in this way from the blackberry are good for sore mouth, diarrhea, dysentery, &c.

JAMS.

The preserve made from raspberries, huckleberries, blackberries, and other similar berries and fruits, which passes under the name

of *jam*, differs from the common sugar preserve more in name than in fact. The berries are mixed with about an equal weight of sugar, and boiled or stewed, and *jammed* or mashed at the same time till the whole mass has the consistence of thick syrup. As so large a per cent. of sugar is used in the preparation, absolute exclusion of air is not requisite; and hence a paper cut the size of the jar, and wet with brandy, laid directly upon the jam, and another piece of paper pasted upon the mouth, are found to answer every purpose.

Raspberry Jam.—Weigh the fruit, and add three-quarters of the weight of sugar; put the former into a preserving pan, boil, and break it; stir constantly, and let it boil very quickly; when the juice has boiled an hour, add the sugar and simmer half an hour. In this way the jam is superior in color and flavor to that which is made by putting the sugar in first.

JELLIES.

If, instead of stewing the entire fruit, as in making jam, the juices be pressed out through a strong piece of coarse muslin, we shall have the pulp without the seed or woody fibre. For this reason jellies are much more valuable for the household than jams, as being among the choicest stores for the sick chamber that can be secured. The preparation and mode of preservation are the same as those of jams. Apple, currant, grape, blackberry, and raspberry, are among the most valuable jellies.

To Make Good Apple Jelly.—1. Take apples of the best quality and good flavor, (not sweet,) cut them in quarters or slices, and stew them till soft; then strain out the juice, being very careful not to let any of the pulp go through the strainer. Boil it to the consistency of molasses, then weigh it and add as many pounds of crushed sugar, stirring it constantly till the sugar is dissolved. Add one ounce of extract of lemon to every twenty pounds of jelly, and when cold set it away in close jars. It will keep good for years. Said to be superior to currant jelly.

2. Cut in quarters six dozen fall pippins, take out all the cores, put them into a pan, just cover them with cold water and place them on the fire. Let them boil until they become quite soft, then drain upon a sieve, catching the liquor in a basin, which passes through a clean jelly bag; weigh out one pound of sugar to every pint of liquor; boil the sugar separately until it is almost a candy, then mix the liquor with it, and boil, keeping it skimmed until the jelly falls from the skimmer in thin sheets; then take it from the fire, put in small

jars, and let it stand a day until quite cold, when put your paper over and put by till wanted.

3. One pound moist sugar, one pound apples, one lemon—the juice of the lemon to be used and the rind added—cut very fine. Boil the whole till it becomes a perfect jelly. Let it stand in a mould till quite firm and cold. Turn out and stick it with almonds; set custard round. If for dessert, use a small mould, plain. •

4. Slice whole apples, (cores, parings and all,) cook them with just water enough to cover them till reduced to a soft pulp. Take the rind and juice of four lemons: strain this pulp (not squeezing it) twice, add the lemons, measure pint for pound of white sugar; let it boil for half an hour, and turn into forms. Quince, &c., the same way.

5. Peel and core the apples—Spitzenbergs are the best—put them in a brass or porcelain kettle, with water sufficient to stew them without burning. When soft, press out the juice through a woolen cloth. To one quart of juice add one lemon, and boil ten minutes; then put in one quart of sugar—let it boil until it is thick enough—(you can tell by cooling a little)—then strain through the woolen cloth again, and it is done.

Quince and Apple Jelly.—Cut small and core an equal weight of tart apples and quinces. Put the quinces in a preserving kettle, with water to cover them, and boil till soft; add the apples, still keeping water to cover them, and boil till the whole is nearly a pulp. Put the whole into a jelly bag, and strain without pressing.

Apple Cranberry Jelly.—Take a peck of apples, of good flavor, but if not suitable for cooking or eating out of hand, they will answer; wash clean, and cut in thin slices and put in a preserving kettle with about a pint of water, and stew until soft, but not to change color. Put the mass in a thin cloth and squeeze out the juice. Treat a quart of cranberries in the same way, and add the juice to that of the apples, and one pound or less of refined sugar, and cook it until it will form a jelly on cooling, which must be ascertained by experiment. It will be found fully equal to currant jelly, and can be made when that cannot be had.

Peach Jelly.—Peach jelly may be made in the usual way. When very ripe mash and strain through a jelly bag or sieve. Allow a pound of loaf sugar to a pint of juice, half ounce of bitter almond blanched and pounded, or half of the kernels of the stone. If it does not form readily, add izinglass.

2. Pare well ripened peaches and remove the pits, boil the fruit until quite soft in water enough to cover it, strain through a coarse

bag and add one pound white sugar to each quart of the liquid, boiling down until upon trial it stiffens when cooled. If it does not stiffen sufficiently, add a little izinglass. Put in jelly glasses, tumblers or bowls, and paste white paper over them. After setting a short time in the sun, preserve in a cool, dark place.

Currant Jelly.—Pick fine red, but long ripe currants from the stems; bruise them, and strain the juice from a quart at a time through a thin muslin; wring it gently, to get all the liquid; put a pound of white sugar to each pound of juice; stir it until all is dissolved; set it over a gentle fire; let it become hot, and boil for fifteen minutes; then try it by taking a spoonful into a saucer; when cold if it is not quite firm enough, boil it for a few minutes longer.

Easy Mode of Making Currant Jelly.—Squeeze the juice out of the currants; strain and measure it. Put it in a copper or brass kettle, and boil it until the scum ceases to rise; then, without taking the juice off the fire, stir in one pound of well refined sugar to every pint of juice; and as soon as the sugar is fully dissolved—which will be in less than a minute—take it off and pour it into the vessels prepared to receive it. This jelly retains the beautiful crimson color of the currant, much better than the old mode.

Red Currant Jelly.—With three parts of fine, ripe, red currants, mix one of white currants; put them into a clean preserving pan, and stir them gently over a clear fire until the juice flows from them freely; then turn them into a fine hair sieve, and let them drain well, but without pressure. Pass the juice through a folded muslin, or a jelly bag; weigh it, and then boil it *fast* for a quarter of an hour; add for each pound, eight ounces of sugar, coarsely powdered; stir this to it, off the fire, until it is dissolved; give the jelly eight minutes of quick boiling, and pour it out. It will be firm and of excellent color and flavor. Be sure to clear off the scum as it rises, both before and after the sugar is put in, or the preserve will not be clear. Juice of red currants, three pounds, juice of white currants, one pound: fifteen minutes. Sugar two pounds: eight minutes. An excellent jelly may be made with equal parts of the juice of red and of white currants, and of raspberries, with the same proportion of sugar and degree of boiling as mentioned in the foregoing.

White Currant Jelly.—White currant jelly is made in the same way as red currant jelly, only it should have double refined sugar, and not be boiled above ten minutes. White currant jelly should be put through a lawn sieve.

Black Currant Jelly.—To each pound of picked fruit, allow one gill

of water ; set them on the fire in the preserving pan to scald, but do not let them boil ; bruise them well with a silver fork, or wooden beater, take them off and squeeze them through a hair sieve, and to every pint of juice allow a pound of loaf or raw sugar. Boil it ten minutes.

Strawberry Jelly.—1. Express the juice from the fruit through a cloth, strain it clear, weigh and stir to it an equal proportion of the finest sugar, dried and reduced to powder ; when this is dissolved, place the preserving pan over a very clear fire, and stir the jelly often until it boils ; clear it carefully from scum, and boil it quickly from fifteen to twenty-five minutes. This receipt is for a moderate quantity of the preserve. A very small portion will require much less time.

2. From the *Agriculturist*: Take ripe perfect strawberries, pick off the husks, place the berries in large, but not deep, dishes, saturate well with refined brown sugar, and set the dishes on the cellar floor to keep them cool. Early the next morning drain off the juice, being careful not to mash the berries. (Make pies of the berries.) Stew the juice over a slow fire until it begins to thicken, then stir in as many cups of sugar as there are of juice ; keep it cooking slowly and well stirred until the sugar is well dissolved. Some prefer a common stone milk crock to stew it down in. When a little cool put it into glass tumblers, and when cold cover tight with two or more thicknesses of white paper, and keep in a cool dry place.

Grape Jelly.—Put the grapes into a jar, and place the jar in an oven, or on the top of a stove to draw out the juice ; then squeeze them through a cloth, and to every pound of juice add one pound of loaf sugar, and boil nearly an hour ; after which pour it into pots, and let it stand till next day ; then cover with paper, and tie up tight.

Wine Jelly.—Pour one quart of boiling water on half a paper of gelatine ; sweeten, and when cool add two wineglasses of wine. This is well recommended.

2. One pint of cold water, to be poured on one paper of gelatine. Let it stand an hour ; then add one and a quarter pounds of white sugar, the rind of one lemon, and the juice of three, one pint of wine, (any kind will answer,) one quart of boiling water. Strain it, and set it away to cool and harden.

Iced Pine-Apple Jelly.—Take off the rind of a pine-apple, and trim the best part equally about the size of a crown piece, but a little thicker. Boil it in the sugar, adding the juice of a lemon ; then put to it

some clarified isinglass; drain the slices through a sieve; strain the juice and sugar through a jelly bag. Put in the mould one-half an inch of jelly, and set it on ice to freeze. When firm, lay the slices over the jelly. When this is frozen, add more jelly to freeze again; then fill the mould.

Table Jelly.—Eight sheets of isinglass, eight tumblers of water, a pound and a half of sugar, two sticks of cinnamon, some mace, three lemons, cut in slices and the seeds taken out, the whites of three eggs, well beaten. Let it all soak half an hour; then boil hard for ten minutes, and strain through a hair sieve into moulds.

Bread Jelly.—Cut the crum of a penny roll into thin slices, and toast them equally of a pale brown; boil them gently in a quart of water till it will jelly, which may be known by putting a little in a spoon to cool; strain it upon a bit of lemon peel, and sweeten it with sugar. A little wine may be added.

Calf's Foot Jelly.—1. Having reduced some feet to jelly by boiling, scrape off the fat from the cake when cold. Melt it in a kettle, and before it is warm enough to cook them stir in the broken whites of some eggs. Boil and skim well; strain through a flannel bag; return to the kettle with the addition of some brandy, sugar, and delicate spices, as much as makes it agreeable to you. Boil until it will readily congeal on ice; strain it through flannel until perfectly clear; mould it, or if for glasses, heap it in them in broken pieces. You may flavor calf foot jelly with any fruit you choose. Gelatine is dissolved in water and prepared by the same process. One ounce to one quart of water in winter; one and a half ounces in summer.

2. To four large, well cleaned legs put four quarts of water; let it simmer slowly till reduced to two quarts; when the meat is tender, and leaves the bones, take off the kettle and strain the whole through a colander. Let the jelly cool in the same room gradually; when cold, remove with a silver spoon all the top fat; put the jelly into your preserving kettle, leaving the sediment at the bottom of the dish. Put to the jelly in the kettle the beaten whites and shell of six eggs, the strained juice of three large lemons, the thinly pared rind of one of the lemons, one pound and a half of the best loaf sugar, crushed with a rolling pin, one pint of white wine, a large nutmeg, a teaspoonful of ground cinnamon. Allow it to melt gradually, and do not stir it after it has melted. As the scum accumulates on one side, take it off. Have ready two straining bags, made of cotton or linen, sewed on small wooden hoops; into one bag put a large teaspoonful of brown sugar, if you wish a deep color to the jelly which is to be poured upon

it. Do not squeeze the bags, it will make the jelly muddy. When the jelly is in, cover the aperture of the bags. Should it not run clear, return it to the bag. When the jelly has passed through the bags, let it remain in the same room till it becomes solid. When cool, fill up glasses with a spoonful from one dish, and from the other, alternately, or, if you choose, keep them in separate glasses. Calf's foot jelly looks best broken up in glasses.

3. By Mrs. Sigourney:—

Cut in pieces four calves' feet;
Put four quarts of water to them:
Make them subject to a heat
That to two quarts shall subdue them.

Strain the fluid; let it rest
All night long from toil and trouble;
Then from foot and forehead take
Sediment and oily bubble.

Lay it in the pan once more,
With a pint of wine to boot,
Acid juice of lemons four,
Sugar that your taste shall suit.

Beat the whites of twice four eggs
To a snowy froth, and then,
Watchful at your kitchen range,
Boil for minutes three times ten.

Take it off, and add a cup
Of cold water to restore it;
Pass it through a flannel bag,
And in crystal glasses pour it.

Codicil:—

When you compound this jelly, friend,
I simply hint to you,
From motives of economy,
To make a custard, too.
For there are yolks of eggs, you know,
Which 'twere not well away to throw.

So beat them all with sugar fine,
A quart of boiled milk use,
And when 'tis tepid, stir them in,
With flavoring as you choose.
Then in small cups of China bake it,
Or in deep dish a pudding make it.

Fruit in Jelly.—Put in a basin half a pint of calf's foot jelly, and when it has become stiff, lay in a bunch of grapes, with the stalks upwards, or fruit of any kind; over this put a few vine leaves, and fill up the bowl with warm jelly; let it stand till next day, and then set the bowl in water up to the brim for a moment, then turn out carefully. It is an elegant looking dish.

Quince Marmalade.—Gather the fruit when quite ripe; pare, quarter and core it; boil the skins in the water, measuring a teacupful to a pound of fruit; when they are soft, mash and strain them, and put back the water into the preserving kettle; add the quinces, and boil them until they are soft enough to mash fine; rub through a sieve, and put three-quarters of a pound of sugar to a pound of fruit; stir them well together, and boil them over a slow fire until it will fall like jelly from a spoon. Put it in pots or tumblers, and secure it when cold with paper sealed to the edge of the jar with the white of an egg.

Peach Marmalade.—Mash to a fine pulp, and add sugar in the proportion of the sweetmeats and simmer down; it should be a smooth, thick mass. Put away in large tumblers.

Blackberry Flummery.—Stew blackberries, moderately sweetened with sugar or molasses, until soft; mix a thickening of flour and water, and stir into the berries. Continue stirring while it boils, until the whole becomes incorporated into a mass just sufficiently thick to pour into moulds; when cold, turn out for dessert, to be eaten with milk or cream.

Plum Muss, or Lekwar.—Plums boiled into a mass, no ingredient whatever being added to it—the plums being so sweet in themselves they require no sugar. In Hungary it is used in both cottage and mansion, and is a common article of sale in every provision shop. It will keep good for two or three years if carefully stored. It is pleasant and wholesome.

Juice of the Watermelon.—Boil the juice in an iron vessel, then put in apples or peaches, like making apple butter, and boil slowly until the fruit is well cooked; then spice to taste, and you have something by many preferred to apple butter, or any kind of preserves. Or the syrup may be boiled without fruit down to a very fine molasses.

PRESERVATION OF MEATS.

PRESERVATION of food consists in checking or preventing chemical decomposition. There are five methods in most extensive use: 1. By use of salt. 2. By use of sugar. 3. By the aid of heat. 4. By the use of creosote. 5. By exclusion of air.

In respect to their sanitary qualities, preservatives may be classed as beneficial, inert, or injurious—salt and sugar being in the first class—heat in the second—and creosote, nitre, arsenic, &c., in the third.

Too great a proportion of salt food results in a scorbutic tendency of the system; of sugar food, in a tendency to dyspepsia; of smoked, to both.

The harder, firmer, whiter, and cleaner, the greater power of sugar to absorb water, and consequently to preserve.

Chemical action, when once commenced, can never be recovered. It may for a time be checked so as to be harmless, but the process of decomposition once commenced never “goes backward.”

Preserving Animal Substances.—Putrefaction requires the presence of water; hence by drying animal substances they are preserved. Putrefaction is impossible above one hundred and eighty-two degrees, or below thirty-two. Freezing acts precisely as drying. Hence bodies preserved by frost, and those which remain fresh for years after death on the Arabian deserts, are preserved from the same essential cause.

To Keep Fresh Meat in Summer.—Put the meat into a stone jar, and cover it with sour milk. By changing the milk once or twice, it will keep a week or more. Before cooking, wash the milk from the meat, and lay it in a little soda water a few minutes. It will make it very tender. Or hang the meat in the well.

Mr. Runge has published the following method for preserving meat: “In an earthen pot, provided with a good lid, pour an ounce of concentrated acetic acid; place over it, so that it may not touch, a grate of osier or wood, and on this lay the meat to be preserved, and then cover with the lid. The acid, evaporating slowly, envelopes the meat, and at the end of twelve days or a fortnight, it is both tender and sweet, with an excellent flavor.”

Pickling Meat.—Prof. Rafinesque strongly denounces the use of saltpeter in brine intended for the preservation of flesh to keep for food. That part of the saltpeter which is absorbed by the meat, he

says, is nitric acid, or aquafortis, a deadly poison; animal flesh, previous to the addition of the former, only possesses a nutritious virtue. This is destroyed by the chemical action of salt and saltpeter; and, as the Professor remarks, the meat becomes as different a substance from what it should be, as leather is from raw hide before it is subjected to the process of tanning. He ascribes to the pernicious effects of this chemical change, all the diseases which are common to mariners and others who subsist principally upon salted meat—such as scurvy, sore gums, decayed teeth, ulcers, &c.; and advises a total abandonment of the use of saltpeter in making pickles for beef, pork, &c., the best substitute for that article being, he says, a small quantity of sugar, which renders the meat sweeter, more wholesome, and equally as durable.

Smoking Meat.—As bark contains the essential oils of the tree, its smoke is not so desirable as that of wood. That of corncobs is, by many, esteemed very highly; but perhaps the sweetest and purest smoke is obtained from dry hickory sapwood without the bark.

To Preserve Smoked Meat.—A friend of mine for several years past has preserved his bacon from flies and insects in the following manner: When the meat is well smoked, he carefully packs it away in large casks or boxes, thoroughly buried in shelled corn. By this simple process he assures me that he has never failed in preserving his meat in good order until the last piece was gone. It should be placed where moisture will not cause the corn or meat to mold.

A Belfast (Ireland) paper states that meat, first dried in a current of air, and then hung up in a close chamber, and exposed for twenty or thirty minutes to the fumes of burning sulphur, will keep as long as required. The meat before packing must be further dried, and then covered with some impervious substance.

The Preservation of Meat by Molasses.—Mr. Marqueritte states in *L'Invention*, that meat may be preserved by molasses alone in the most perfect manner, and with the following important advantages: It has an agreeable flavor, it produces no scurvy or other disorders which result from the use of salt food, and it may be prepared at a moderate price.

The process consists simply in cutting the meat into pieces of moderate size and dropping them into molasses, such as is obtained from the sugar manufactories or refineries. By a natural process of osmose, the lighter juices of the meat pass out, and the heavier molasses penetrates inward to every part of the meat. When the external molasses has acquired a certain degree of liquidity from the mixture of the juices of the meat, it is a sure sign that the meat is thoroughly impregnated. It is now taken out of the molasses, thoroughly washed,

and hung in a current of air to dry. After it is completely dry, it may be packed in boxes and sent all over the world without experiencing any change whatever.

Preserving Meats and Vegetables.—Partially boiled or roasted meat, free from all taint, and half dressed vegetables, are introduced into a tin cannister, which is then soldered up, with the exception of a small hole in the lid. The cannister is then placed in a bath of boiling salt brine, which is heated a few degrees above the boiling point of water, and when it is noticed that steam issues copiously from the aperture, the canister is lifted, and the hole in the lid instantly filled with a drop of solder, thus hermetically sealing the vessel. The success of this operation is indicated by the end of the canister becoming slightly concave by the pressure of the atmosphere upon it. Meat thus prepared has kept fresh twenty years. Pure butter, melted and brushed over the surface of fresh meat, preserves it from contact with the air, and it will remain unchanged for a much longer period than when exposed to the air. Vinegar, containing a few drops of creosote, brushed over fresh meat, will also preserve it from decomposition for several days during warm weather.

Preservation of Pork.—Pork presents the readiest facilities for preservation. It should not be put down till the animal heat has fully passed off, and it is cold throughout. When packed, with from forty to fifty pounds of salt to the hundred of pork, interspersed between the layers, and the barrel filled with soft water so as to fully cover the meat, and left in a cool place, no further care need be taken, except that it must be kept covered with brine. In the colder latitudes it may be kept fresh all winter by being packed in a barrel with snow, or suspended on the north side of a building. Freezing results in no material injury to its qualities.

Pickled Pork said to be Equal to Fresh.—A correspondent of the *Scientific American* directs as follows: "Let the meat cool thoroughly; cut into pieces four to six inches wide; weigh them, and pack as tight as possible in the barrel, salting very lightly. Cover the meat with brine made as strong as possible. Pour off a gallon of the brine and mix with it one tablespoonful of saltpeter for every hundred pounds of meat, and return it to the barrel. Let it stand one month. Then take out the meat; let it drain twelve hours. Put the brine in an iron kettle, add one quart of molasses, or two pounds of sugar, and boil until perfectly clear. When it is cold, return the meat to the barrel, and pour on the brine. Weight it down, and keep it covered close, and you will have the sweetest meat that you ever tasted."

Another method that has been recommended is to boil the brine, skim off all the impurities, and pour it on hot. The salt strikes into the meat while hot in a short time, as the pores are enlarged by heat. It has been tried by many different persons, and liked.

The following is also recommended: After the bone and lean has been removed from the broadside, cut in pieces about ten inches square. Place a layer of salt on the bottom of the barrel, and then a layer of pork, with the rind down, and so on until the whole is packed. After standing a day or two, make a strong brine, and turn over the pork enough to cover it. We have always cured our pork in this way, and have never lost any; it has kept perfectly sweet.

To Cut up and Cure Pork.—The directions here given are from the New York *Tribune*: The first operation is to take off the head, pretty well up to the shoulders, by cutting the flesh with a sharp knife, and the bone with an ax. Cut off the ears as close as possible; divide the jowls from the upper part of the head, on a line with the mouth, by knife and ax. These are excellent salted and smoked, or they may go into head cheese. This is made of the upper part of the head, with the souse, or else it goes into the oven for baked pig's head, in which case two inches of the snout must be cut off for souse. The next cut is to sever the ribs close to the backbone along each side, and take out the backbone for roasting. Now cut the leaf fat loose from the ribs forward, and seize it with a strong grip and pull it and the kidneys out, and then, with a knife inserted under the ribs, cut them loose with as little meat as possible. Now cut off both hams, and cut them apart, taking out the tail-piece, wedge-shaped, and trim the hams to a handsome shape, with only a short leg on each. Now cut the shoulders off in the same way, taking out quite a chunk of fat meat of the back between them. Then cut up the sides, if wanted for pickled pork, in sizes to suit; if intended for side bacon, leave them whole in two pieces. If your pig is not large, and you want fresh roasts, you need not take out the backbone, but cut it with portions of the ribs and sides into suitable sized roasting pieces. If your pig is very fat, and as lard is worth more than pork, trim the joints and sides closely, and cut it up fine for lard. These with the leaf must be put in a kettle over a slow fire, so as not to burn, without water, and cooked till all the water is wholly evaporated, and the scraps thoroughly cooked. Such lard will keep sweet.

It will be most convenient for you to dry-salt your bacon. First sprinkle a little saltpeter—four ounces to one hundred pounds of meat—and then rub half a gill to a gill of molasses upon each joint, and

let them lay a day or two; then rub them with fine hot salt—six pounds to one hundred pounds of meat—and lay them upon the floor, or on a table, as many days as a joint weighs pounds, rubbing them over once in the time. Salt the side pork in the same way, and afterward pack it in brine as strong as salt will make it.

When the joints are ready to smoke, brush off all the loose salt, or rub it off with a wet cloth, but do not put them in water, and sprinkle them well with red pepper. Smoke them with any sweet wood, and be sure never to heat them, nor to make a smoke in wet days. Let your smoke house be open for the smoke to escape, and do not hurry the business, and you will have sweet bacon. It will take two or three weeks to smoke a ham of sixteen pounds weight. Never use rotten wood. After your joints are smoked to suit you, put each in a loose cotton bag, and hang up the joint by the string, not by the bag, in a cool, dry room, and your hams will keep for years.

English Receipt for Curing Bacon.—So soon as the meat comes from the butcher's hand, rub thoroughly, and fill every crevice with fine salt. Next day scrape off the salt not absorbed, cleanse out the vessel, and salt the pork as before. Repeat this three days. The fourth day, use pulverized saltpeter with a handful of common salt—one-quarter of a pound of saltpeter to seventy pounds of meat. Then mix one pound of coarse brown sugar, one pint of common molasses, and pour over the saltpeter; repeat this four times a day for three days, and then twice a day for a month. Smoke with maple or hickory chips, or clean, fresh corn cobs.

To Cure Hams.—Curing and keeping ham so as to have it keep sweet and good the year round is a matter which interests every housekeeper and lover of good ham.

To every one hundred pounds of meat take seven pounds salt, two ounces saltpeter, one ounce Cayenne pepper, five pounds brown sugar, (or two quarts molasses.) In packing the hams, use one-half the salt. The rest of the salt, with the other ingredients, should be put in water enough to cover the meat; boil and skim, but let it stand until cool; then pour it over the hams. Let them remain in this brine six weeks, then rinse and smoke. This method is said to give good satisfaction.

2. A friend, at whose house we have eaten the most delicate flavored ham, says: After trying various ways of curing hams, we prefer the following as cheapest and best: As soon as the animal heat is gone, rub the hams thoroughly with hot salt, pack them edgeways on a large table in the cellar, let them stand three or four days, and

repeat the process, and let them stand as much longer. Then smoke and hang them in a cool place. If not used up before warm weather, cut the ham in slices the same as for frying, and fry until nearly done. Pack in a stone jar, and turn the fat fried out over the slices, having as much as two inches thick over the top of the meat. Cover the jar air tight and set in the cellar.

3. From Prof. Loomis, in the U. S. Agricultural Report: There is no species of food for which insects seem to have so decided a preference as hams. The pickle for hams may be made in the same manner and of the same proportions as that for beef, only that it should not be used hot, as in the case of beef. Sugar or molasses may be added to this pickle, as fancy indicates. The time of remaining in the pickle will depend on the size of the ham—from one to two months—when it is to be smoked until the curative process is complete. This can only be determined by the amount of pickling it has received. As the preservation is accomplished by the joint effect of two processes, one must respond to the other; if one has been deficient, the other must make good the loss. After the preservation is supposed to be complete, the usual—perhaps the most effectual—guarantee against insects is to sew the hams up in close sacks and cover them with a solution of lime or whitewash. This also serves as a covering to exclude the air.

4. From John H. Gardiner, Jamestown, R. I., who says: Permit me to give you a recipe that will not only save a ham through the whole year, but will be fit to either boil or fry:

For such sized hams as can be cut from hogs weighing 250 pounds, average, I take one ounce saltpeter, one ounce saleratus, half pint molasses, and a large handful fine salt, to each ham and shoulder. Mix all together in a tub or half barrel. Then, with a small cloth rub each piece and place in a cask. Do this twice each day for three weeks, and they are ready to smoke. For larger hams increase in proportion.

Smoking is another process requiring some care. Be careful not to smoke too much. Hams want to be dried as well as smoked. I would recommend a little smoke each day for two weeks, and then take down, roll in Union newspapers, put them in bags, and hang them in an upper room, and you can then have good hams the year round. This is much better than packing in brine, as they will always be too salt.

5. The *Western Christian Advocate* publishes the following: To every sixty pounds of ham take one pint of fine salt and one ounce

of saltpeter. Pack in a clean oak cask, sprinkling the salt between the layers of meat. Dissolve the saltpeter and pour it over the whole adding sufficient pure water to cover. Soft water is best. Let them be under the brine six weeks, then smoke.

6. Mr. R. G. Pardee said before the American Institute Farmers' Club:—Hams can be made almost as delicate as tender chicken. All hams should be cured by the following compound of articles: To one hundred pounds of hams use eight or nine pounds of rock salt; two ounces saltpeter; two pounds of white sugar; one quart of best syrup; four ounces saleratus; one ounce alspice. These materials are boiled and scummed in ten or twelve gallons of water, and the hams packed in a barrel; and the brine put on cool, adding water if necessary to cover the hams. None but a new oak barrel should be used. Scald the barrel and cool it before putting in the hams. Let them lay three weeks and then take them out and air them twenty-four hours; put them back again three weeks, and then take them out and dry them thoroughly before smoking, which is done in an airy smoke house, with cobs and maple or hickory chips. It is then a most delicious article of food. In smoking, be careful to keep your hams cool; never allow fire enough to heat the meat.

7. For curing hams and shoulders, a Virginian gives the following receipt, which he thinks cannot be beat:

Supposing the hogs are killed at daybreak, as is usual among farmers, they should hang from twenty-four to thirty-six hours before being cut up, or till the animal heat has entirely departed. Upon each joint upon the skin side rub well half a teaspoonful of saltpeter; then rub salt of a good quality on both sides well, leaving the salt about one-quarter inch thick on the flesh side of the piece of meat. After salting they should be packed in a close trough or box, tight and close enough to hold brine; lay them in the box with the skin side down, taking care that the pieces do not touch each other, being kept separate by the salt. If large hams let them remain in the box undisturbed for five weeks; if small size, for four weeks. Take them out, scrape off the salt, rub them all over with hickory ashes, hang up in smoke house hock down; smoke moderately for four weeks, making only two fires a day, and they are to be made of hickory chips. About the first of March take down the pieces and rub them again with hickory ashes, and hang them again in smoke house where they can remain the whole year. Care must be taken not to let the hams touch each other in the smoke house. If a green mould should appear on the outside it only insures it against spoiling.

8. Here is a receipt furnished to the *Country Gentleman* by a correspondent, and highly recommended by the editors:—Although it involves some more trouble than may be necessary in other receipts, the excellence of the result is thought more than a compensation: One pound and a half of salt, one-quarter of a pound of saltpeter, and one ounce of black pepper. Mix these well together, and rub the ham *well*; cover it with what remains; let it be six days without moving; then add one pound of molasses, after which turn the ham every day and sprinkle it with the pickle for five weeks. Then dry it well and hang it up in a temperate heat to dry thoroughly.

9. We add a receipt published several times by the *Germantown Telegraph*, which says: After using it for about twenty years, and comparing the hams so cured by a dozen different processes, we are more than convinced of its superiority. It is this: To one gallon of water take one and a half pounds of salt, half pound of sugar, half ounce of saltpeter, half ounce of potash. In this ratio the pickle to be increased to any desired quantity. Let these be boiled together, until all dirt from the sugar rises to the top and is skimmed off. Then throw it into a tub to cool, and when cold pour it over your beef or pork, to remain the usual time, say four or five weeks. The meat must be well covered with pickle, and should not be put down for at least two days after killing, during which time it should be slightly sprinkled with powdered saltpeter, which removes all surface blood, &c., leaving the meat fresh and clean.

Several of our friends have omitted the boiling to the pickle, and found it to answer equally as well. It will not, however, answer *quite* as well. By boiling the pickle it is *purified*—for the amount of dirt which is thrown off by the operation from the salt and sugar, would surprise any one not acquainted with the fact.

To Cure Hams Without Smoke.—"After trimming hams pork-house style, and rubbing them well with salt, sprinkle salt over a floor or platform, and lay them down flesh side up, in such manner as to economize space. To each ham give a teaspoonful of pulverized saltpeter, then pack on salt as long as it will lay. In this condition leave them until they have taken salt, and before the fly makes its appearance. Then take them up, knock and rub off with a wet cloth, all adhering salt, expose them to the air to dry, and when dried hang them up in a *high, dry, dark and airy loft, to cure without smoke*. Thus cured they will pass in any market or meet the palate of the most fastidious epicure."

To Keep Smoked Ham or Shoulder Through the Summer.—As soon

as moderately smoked, cut it up in slices as if for the table, and fry until about half cooked; then pack away tightly in the lard that fries out of it; if that is not sufficient, adding melted lard until it is entirely covered, so that it will not mould. Keep it covered, and in five minutes, at any time, you can finish cooking a few pieces for a hurried meal, and you will find it a superior way to any other for preserving ham or bacon, salted and smoked just to your taste, as well as the most convenient.

2. Slice and trim ready for cooking; pack in a stone jar, alternating a layer of ham and lard; cover tight, and it will keep perfectly sweet for a year. Or, cut in slices ready to fry, pack snugly in stone jars, and cover with lard barely warm enough to run. Of course, as the meat is used the layers remaining must be covered.

3. After the hams are smoked, put them back into the brine from which they were taken, if it is in good condition. The hams will get no saltier, and, if kept covered with brine, neither the air nor flies can touch them, and they will remain sweet and good until used.

4. Make sacks for them of a yard square of good sheeting. Put them up before infected by flies, one in a sack. Cut up sweet hay about one inch long, and put in the sacks around the hams, keeping them from the bag. Tie up and hang up in the smoke-house, or some cool, dry place; the hay and bag will keep away the flies, and allow the escape of moisture, so that they will not mould. If well cured and thoroughly smoked, one may depend on having good hams as long as they last.

To Prevent Skippers in Hams.—Mr. W. McWillie, in the *Cotton Planter*, says: Simply keep your smoke-house dark, and the moth that deposits the egg will never enter it. He keeps hams hanging in his smoke-house till three years old, as free from insects as when first hung up. He also recommends smoking with green hickory, as improper wood is liable to destroy the flavor.

2. A correspondent of the *Am. Agriculturist* tells us that if smoked hams be washed clean and rubbed well with saleratus, a coating will be formed which insects will not penetrate.

To give any Ham the Smoky Taste.—Mix equal parts of vinegar and tar. Dip the ham into it for a few minutes. Then pour off and broil.

Preservation of Beef.—At moderate temperatures exposure to a dry current of cool air will preserve fresh beef quite as long as it can be kept in an ice chest. The most convenient arrangement is to suspend the meat in a north open window, another window or door being open

so as to create a draught of air. It should not lie in a dish, as the under side will be prevented from drying. Meat once placed upon ice prepares itself to decay at that temperature, and, if removed, spoils quickly. If meat has once been in the marketman's ice-chest, after being carried home on a hot summer's morning, it will hardly keep sweet three hours, whether it be on ice or not.

Dried or Jerked Beef.—In the dry cooler latitude of the Northern United States, this mode may be successfully practiced in almost any season, but usually only in the cooler. For jerking, if the weather be fine, and exposure to wind favorable, little salt may be required; but for large and heavy rounds, rub the meat thoroughly with hot salt. To meet with success, great care is necessary that the salt be rubbed over every part of the surface, and into every crevice where air may penetrate. This should be repeated once or twice daily for three or four days. Unless the weather be quite cool, success will not be certain with heavy pieces. A surer and less inconvenient method is to place the meat in an ordinary beef pickle until it has had time to become thoroughly salted through, say from ten to fifteen days, according to size. It is then hung where dry air may have free access. Care is to be used that it be kept cool, or but moderately warm, while drying.

Salted Beef.—There is little difficulty in keeping salt beef in an ordinary farm cellar through the summer, but it is quite otherwise when prepared for market or transportation. If salted sufficiently to secure it against changes of temperature, it becomes so salt and hard as to be comparatively unpalatable and worthless. Of this nature must necessarily be "army beef." The question with the farmer is not *whether* he can keep beef by salting, but *how* to salt it so as not to cause the loss of its qualities. The cask must be perfectly sweet. If meat has ever once "taken hurt," it is impossible ever to render it safe again. The winter pickle should never be retained for summer. As warm weather comes on, a new, clean brine should be substituted.

The materials and proportion of the pickle vary much in different localities, and according to the taste of individuals. The following is substantially good: Make the pickle of strength to bear a fresh egg above the surface to the size of a quarter of a dollar; add one ounce of saltpeter to fifteen to twenty pounds of meat; one pound of sugar, or one and a half pints molasses in same proportion if desired. After the meat is packed in the barrel, the pickle is turned on boiling hot.

The spring pickle is of similar proportions, except being without saltpeter, and without being heated.

2. The editor of the *Country Gentleman* recommends for corning: Two pounds brown sugar to eight gallons of water, also one quart of molasses, four ounces of niter, and fine salt till it will float an egg. This is enough for two quarters of beef.

3. A correspondent of the same paper says: For one hundred pounds beef take six gallons water, nine pounds salt, half fine and half coarse, three pounds brown sugar, one quart molasses, three ounces saltpeter, and one ounce potash. Put the above ingredients into a kettle, and boiling take off the scum. As soon as the scum ceases to rise, take it off the fire, and, when cold, pour it in the barrel on the beef. The beef should be rubbed with fine salt before packing in the barrel. Mr. Tucker, the editor, recommends this also very highly.

4. To one hundred pounds meat take eight pounds salt, two ounces saltpeter, two ounces pearlash, one ounce and a half of Cayenne pepper, two pounds sugar, (or one quart molasses.) In packing the beef use one-half the salt; the rest of the salt, with the other ingredients, should be put in water enough to cover the meat; boil and skim, but let it stand until cool; then pour it over the beef. Let them remain in this brine six weeks, then rinse and smoke. Beef cured this way will keep through the summer, it is said, and not get too salty. This pickle is also recommended for hams.

5. This is preferred by many: Pack the beef with two pounds salt to the one hundred pounds meat, in tight boxes or barrels; let it remain two or three days for the salt to absorb the blood from the meat; then take it out, wash it clean, and pack with seven pounds salt to the one hundred pounds meat, and two ounces saltpeter, in good barrels. Beef cured in this way will keep in the summer on a sea voyage. The meat is rendered harder, however, and not so sweet as when cured according to the previous recipe.

6. "For one hundred pounds of beef six quarts of salt, (or ten lbs.) four pounds of sugar, four ounces of saleratus, two ounces of saltpeter. Pulverize the saltpeter, and mix the whole together. Put it on as you pack the beef. Pack close, and put a stone on to keep it down."

7. To one hundred pounds beef take four quarts salt, and half an ounce saltpeter, with which rub the beef well, and pack tight in clean barrels. After it has stood a few days, draw off all the brine formed, which is bloody and injurious to the beef. Then cover the beef with

a fresh cold brine, strong enough to bear an egg, adding to it half an ounce saltpeter.

8. For one hundred pounds beef take five pounds salt, one pound loaf sugar, and two ounces saltpeter, which heat slowly until dissolved in three gallons of water, when skim and pour cold or hot over the beef.

9. "To one hundred pounds beef eight pounds clean coarse salt, two ounces niter, a pound and a half of sugar, and four gallons water. Remove the scum, and let the rounds and other drying beef remain in the pickle from nine to fourteen days. Beef is not improved by smoking. Boiling meat will keep all winter in this pickle."

10. Said to be excellent: To one hundred pounds of beef, four quarts of salt, two ounces of saltpeter, and one pint of molasses. Mix well in water enough to cover the meat.

To Prepare Beef for Drying.—From the *Western Christian Advocate*: Cut the piece lengthwise of the grain, not too large or too small. Rub each piece separately in cold salt, and place it in a large wooden bowl or dish-pan, or in any suitable vessel that will hold the beef; and then another piece, and so on until it is all nicely packed; cover it up and set in a moderately warm place; let it stand a week, then smoke it, and lay a few pieces of it at a time on a dripping pan, after it has been well drained, and set in the oven, and let it remain until just heated through; then hang up around the stove, and dry as quickly as possible.

2. To thirty-six pounds of meat one pound salt, one and a half tablespoonfuls saltpeter—one-third rubbed on once a day for three or four days, and they are ready for drying or smoking. Equally good for hams.

MAKING AND PRESERVING SAUSAGES, HEAD CHEESE, ETC.

CHOP or grind the meat, and season to taste. Then make into suitable sized cakes, and fry until thoroughly cooked. While frying, occasionally press each cake with a spoon, that all the watery particles may be removed. Then place it closely in stone or earthen jars, one layer after another, until the jar is filled. Then run warm lard over it sufficient to perfectly exclude the air; fasten a good thick paper over the top, and store them away to be used when wanted. When

desired, the cakes may easily be removed, unbroken and perfect, by warming the jar—then put in a pan until thoroughly heated through, and they are ready for the table, as fresh and nice in mid-summer as when first made.

2. To make sausage—wash your sausage meat in tepid water, but do not soak it. See that it is free from bone, sinews, gristle, &c., &c. Cut it up in small pieces; to three pounds lean meat allow one pound of the leaf fat; chop, or rather grind it very fine. To this quantity allow three ounces salt, one-half ounce of ground black pepper, one tablespoon of powdered sage. When well mixed, cook and try one of this batch before you season another; it is easy to add seasoning, impossible to take it out, therefore be cautious in using it. Remember your sausage becomes more salt as it dries. Add any spice you like.

3. To thirty-six pounds meat, nine to twelve ounces salt, one ounce and a half pepper, one and a half tablespoonfuls saltpeter; three tablespoonfuls molasses, six handfuls or more of sage.

4. Excellent: To forty pounds meat; one pound salt, three ounces pepper, half a pint pulverized sage. Warm without water. For preserving put them in muslin bags, about six inches wide, and nine inches long, that have been immersed in hot lard and wrung dry. In this way they will keep, it is said, six months if desired.

5. To thirty pounds of meat add ten ounces of fine salt, three ounces of sage, one ounce and a fourth of pepper, two ounces of cinnamon, and mix well together. Apply it to the meat before chopping.

6. To thirty pounds of well cut meat, nine or ten ounces of clean well rubbed fine salt, four ounces of pepper, and one ounce of sage, if you use a cutter apply the seasoning after the first operation, and then pass it through the machine again. Mix thoroughly.

7. For twenty pounds of chopped meat, four ounces sage, ten ounces salt, one and three-fourths of an ounce of black pepper, one heaping teaspoonful red pepper, one ordinary teaspoonful saltpeter. The meat should be free from strings, and containing about one-fourth fat—a proportion of it leaf fat. This sausage is improved by age—put in casings, and smoked moderately. A Maryland lady says this is one of the best recipes for domestic sausage meat in the whole country. Of course there is no standard of tastes in such matters. Some may think the seasoning too high; others may think the ingredients too few. Every one, therefore, should *try* before using any recipe upon too large a scale.

8. Take fat and lean meat, cut off the rind, and season as follows: To twenty pounds of meat add eight ounces of sage and a teaspoonful

of ground black pepper. Stir well with the hand: pack in tin pans; when full dip a cloth the size of the top of the pan in melted lard, and spread over the pans, and turn them together and place them in a cool place.

9. For thirty pounds meat, eight ounces fine salt, two and a half ounces pepper, two teacupfuls sage, one teacup summer savory.

10. For ten pounds meat, two ounces pepper, an ounce and a half of sage, four ounces salt, half ounce cayenne pepper. Mix well, adding some warm water to make them fill easy. They should be filled in skins, and linked and dried before cooking.

11. Very excellent sausages are made with nearly equal parts of fat and lean pork, finely chopped and seasoned with pepper and salt; but for a superior article the following receipt is particularly recommended: Chop, first separately and then together, one pound and a quarter of veal, free from fat, skin and sinew; and equal weight of lean pork, and of the inside fat of the pig. Mix well, and strew over the meat one ounce and a quarter of salt, half an ounce of pepper, a nutmeg (grated) and some pounded mace. Turn and chop the sausages until they are equally seasoned through, and tolerably fine; press them into a clean pan, and leave them in a very cool place. Form them, when required for table, into cakes something less than an inch thick; flour and fry them for ten minutes in a little butter.

Sausage Skins.—These are prepared by repeated soakings and washings. Then being turned, they are scraped so free from their slimy coat that when blown up they are perfectly white and nearly transparent. They are again soaked in salt water several days, the water being changed daily, and are then filled with sausage meat by some of the various implements devised for that purpose.

Bologna Sausage.—Bologna sausage is made by using one-third of lean beef, seasoning more strongly, and *boiling after stuffing*, before drying.

2. Bologna sausage may be made of any good lean parts of fresh beef. Chop four pounds of beef, two pounds of fresh lean pork, and two pounds of suet. Free from strings, and mix thoroughly. Season with two ounces of salt and as much powdered pepper, and cloves as suits your taste. Stuff these sausages in beef skins nicely prepared. Boil them and then smoke well. They are sometimes dried without boiling, and are used raw. They are a very common resource for travelers who have to be their own commissaries. Sausages made wholly of beef are a very good article for family use.

To Preserve Mince Meat.—Mince meat may be packed in stone jars.

covered with molasses or lard so as to exclude the air, and kept perfectly sweet.

To Keep Cooked Meat from Flies.—If you have no safe put it in the stove oven when it is cold.

To Preserve Meat Broth, Soups and Gravy.—When broth, soups, or gravy, are preserved from day to day, in hot weather, they should be warmed every day, and put into fresh scalded pans; this renders them less liable to spoil.

The *Moniteur Scientifique* says: Meat broth in a bottle, lightly closed with cotton has been found to keep unaltered for more than a year.

Preparation and Preservation of Lard.—In the reduction of lard from the tissues in which it is contained some particles of animal fibre are intermixed, which would, if exposed to air, yield to decay; but being surrounded by the oil and wholly enclosed they are kept inactive, Yet, after some time, if abundant, they may give an odor and taste of decay. This suggests that care should be exercised as to the purity of lard designed to be kept, as well as the exclusion of the air from the vessel. Stone jars (not earthen) are the most desirable vessels. The room should be cool and dry.

To keep it sweet, it is said, the lard of a hog about a year old, fattened upon corn, is the best, and if carefully rendered and packed in stone pots or sound oaken firkins, and kept covered close, will keep in a cool cellar just as long as any farmer's wife wants to keep it. Lard must be thoroughly cooked in rendering; if not it grows rancid in warm weather. A cooling room attached to the ice house is an excellent place to keep lard in summer. But no matter where you store it, if it was not well cooked in the process of rendering, it will not keep sweet.

The lard leaf should be tried separately from that which comes off the inwards, and kept for summer use.

Preservation of Head Cheese.—The more gelatinous portions of the slaughtered pork, such as the head, ears, and feet, being boiled until reduced to the consistence of a jelly, and being seasoned highly with salt, pepper and spices, and pressed into a solid mass, will remain during the cool weather without change. This is perhaps one of the most satisfactory modes of disposing of the odds and ends.

PRESERVATION OF FISH.

Preserving Meat and Fish by Sugar.—To preserve fish by sugar, open them and rub the sugar in, in the same manner as salt, leaving it there for a few days. If the fish be intended for long keeping, dry it after this, taking care to expose new surfaces to the air frequently, to prevent mouldiness. Fish preserved in this manner, it is said, will be found when dressed, much superior to what has been cured by salt or smoke. For a salmon of six pounds weight, a tablespoonful of brown sugar is sufficient.

Preservation of Shad and Lake White Fish.—If immediately dressed and packed in ice, these and many other kinds of fish, as halibut, mackerel, haddock, and salmon, will remain from six to fifteen days entirely sweet. The preservation by salt is simple, as all fish require a saturated solution of salt, i. e. such a quantity as always to have a quart or two of salt remaining in the vessel. The fish should be kept entirely under the brine, and in a cool room.

Preserving Herring.—If dressed *immediately* after being caught, herring can be preserved from November to April by being packed edgewise into tight casks with a half bushel of coarse salt, and pickled. If to be kept through the warm season, the pickle should be drawn off by perforating the cask and letting it thus remain. The store room should be cool and dry, and protected from the sun and warm air.

Preservation of Oysters.—Oysters in shell, may be kept a few days in a cool, damp place, especially if some salted water be sprinkled upon them two or three times a day. As soon as the shells open they are no longer good. Removed from the shells and immediately put into cans or kegs, and sealed or corked perfectly tight, they may be kept sweet in the coldest weather several weeks.

Pickled Oysters.—Taken from the shell, they are immersed in their own liquor until they are white and plump. Being removed and cooled, they are carefully packed in the jar in layers, with a large sprinkling of pepper, spice, &c. The jar is then filled with equal parts of the oyster liquor and good cider vinegar; common merchantable vinegar will often consume the oysters. Sealed tight, they keep for months.

2. Boil the oysters in their own liquor until they look plump, then take them out and strain the liquor; add to it wine, vinegar and pepper to your taste, and pour it over the oysters.

PRESERVING EGGS.

Very many ways are recommended for preserving eggs, such as varnishing the shell, greasing it, steeping in a weak solution of vinegar, &c.

The editors of the *Scientific American* give their opinion that eggs in lime keep better than by any other plan. Slake the lime and put some in the bottom of a jar, then put the eggs in and strew lime over them; continue putting alternate layers of lime and eggs until the jar is full. Eggs put down in this way will keep good until spring, but they will have a limed flavor towards the last.

2. Prof. Loomis says: The changes which eggs undergo, arise chiefly, if not wholly, from absorption of air through the shell. To accomplish exclusion of air, some pack the eggs in corn meal, others in lime water, others in brine. These last two methods are effectual for a considerable time, but the most successful means is to cover the egg with fat, or oil, or butter. Thus prepared, a newly laid egg will remain six months without perceptible change.

3. Some writer says: It is advisable to buy eggs for family use when cheap, and preserve them as follows: Mix half a pint of unslaked lime with the same quantity of salt and a couple of gallons of water, the water should be poured on the lime boiling hot; when it becomes cold put in the eggs carefully, so as not to crack the shells; if cracked they will spoil very soon. The eggs should be perfectly fresh when put in, and the lime water no stronger than the above mixture; if too strong the lime will eat the shells. Another good way is to grease the shells and pack them in salt. Early in the fall is a good time to put down for winter use.

4. The editors of the *Country Gentleman* tell us to provide a small cupboard, safe or tier of shelves; bore these shelves full of holes one and a quarter inches in diameter and place the eggs in them, point downwards. They will keep sound for several months. Other methods such as packing in salt, &c., depend for their success simply on placing their points down; the shelves are more convenient and accessible.

5. From the editor of the *Am. Agriculturist*: (1.) Pack the fresh eggs in a barrel and cover them with clear lime water made by slaking lime to a milk with hot water, stirring up, covering and letting it stand until clear. (2.) Grease the eggs with good lard so as to exclude the air perfectly; pack in boxes setting them on their ends so that the boxes may be turned over without breaking the eggs. Once in about

two weeks turn the boxes over. This prevents the yolks coming in contact with the shell and becoming spoiled. (3.) The same mode of procedure may be followed without greasing the shells, with good success, and (4.) the greasing alone has its good effect.

6. A lady in Venice Centre, N. Y., advises to take equal quantities of salt and bran; dry it well in the oven. Pack the eggs in it, and cover the top with a thick paper fitted close—on which strew salt to the depth of an inch. Keep in a cool, dry place.

7. A good authority asserts that the great point in keeping eggs is to have them *stand on end*—some housekeepers are very sure that it is quite indispensable that the small end should be down; others are equally sure that they should rest on the large end. Both are very successful. They may be packed in oats, dry saw dust, or any other material that will hold them in this position. They should be kept in a cool, dry room.

8. Another says: Dissolve some gum shellac in a sufficient quantity of alcohol to make a thin varnish, give each egg a coat, and after they become thoroughly dry, pack them in bran or saw dust, with their points downward, in such a manner that they can not shift about. After you have kept them as long as you desire wash the varnish carefully off, and they will be in the same state as they were before packing, ready either for eating or hatching. Eggs are imported in this manner for hatching.

A correspondent of an Irish Agricultural paper says: Rub them all over with fresh butter, immediately when laid, then pack them into a cask in regular layers, with the round end uppermost, and fill up all the vacancies with wood ashes, covering the layers about two inches deep with the ashes; they will come out as fresh six months after as when newly laid; or the crevices may be filled up with lime water; but they must in this case be used immediately when taken from the cask. The crevices are sometimes filled up with the following mixture, viz: To five quarts of cold water add one pound of salt and one ounce of saltpeter; boil together for about twenty-five minutes, and when nearly cold, add four tablespoonfuls of pounded quicklime; let it stand three days, stirring it twice a day.

10. Last August, says the *Ohio Farmer*, we placed a thick layer of salt on the bottom of a large sap bucket; oiled the eggs with fried meat fat, and placed them in the salt in such a way as to prevent touching each other, little end down; then a layer of salt, then eggs, till the bucket was full. Set in the cellar. Used the last in May, and found them as fresh as need be—not a bad one among them.

11. Mrs. L. W. Slawson, of Kenosha, Wis., has a plan as follows: She pours some wheat into the bottom of a barrel, and places the eggs day by day as they are gathered, standing on the small end in the wheat. When that course is full, she pours another layer of wheat on the eggs, and repeats the process. When the barrel is full, it is covered and placed in a dry cellar. The barrel stands upon the end without turning, and the eggs are taken out as wanted.

PRESERVING VEGETABLES AND ROOTS.

PACK them in dry sand or saw dust, in boxes or barrels, and place them in a cool dry place; and they will keep from autumn to the following summer nearly as good as when taken from the ground. Some keep them thus the year round including potatoes.

Keeping Potatoes.—When potatoes are dug, put them in heaps, say of a cartload each to sweat, covered with tops, and being left three days to a week, then put in the cellar on a bright dry day. They should be dug in fair weather. Those desired for table use should be assorted out and packed in sand, fine dirt or saw dust as above. The cellar should be dry and the potatoes must not freeze. In the spring when they start their sprouts, throw them out, take off the sprouts, and then put them back in the boxes or barrels. To remove the sprouts, put them occasionally in a bushel basket half or two-thirds full, and after giving a good shaking, if the sprouts are long, you will find most of them at the bottom of the basket. It is better however, to sprout them by hand before they have started much.

Keep potatoes in the dark. Good housekeepers have long observed that the best potatoes always come from the bottom of the bin or barrel, where they are most effectually guarded from the light, and often covered with the soil that has sifted down from the upper layers.

If laid on straw on the ground, and covered with straw and then a layer of earth a foot deep, they will produce shoots near the end of spring; if two feet, shoots appear at midsummer; at six feet they cease to vegetate, and will keep for two or more years in a perfect state. There should be a trench a foot deep around the hill, unless the soil is very sandy.

Potatoes may be kept a very long time from rotting, in a cellar protected against frost, by dusting the floor or bin with lime; then put down a layer of potatoes six inches thick; then dust with lime, another

layer of potatoes, &c. One bushel or more of lime to forty of potatoes; they sprout least in darkness.

Professor Reed said before the Polytechnic Association that he had seen potatoes brought back from a two year's whaling cruise which were kept perfectly sound by having been put into molasses.

Keeping Sweet Potatoes.—1. A correspondent writes from Gloucester Co., N. J., as follows: I will endeavor to give the mode practiced in this, the heaviest sweet potato growing county in the Union. When it is desired to keep but a few, barrels or dry goods boxes are used. Place three by four pieces upon the floor, set the box upon them, a few dry leaves in the bottom of the box, pour in the potatoes, which should be exposed to air only long enough to dry off outside moisture, and all cut and eaten ones taken out. When the box is full, put a few dry leaves on top, cover loosely with the lid, leaving spaces for the moisture to escape. Place another box on top of it, and proceed to fill in the same way. The potatoes should be put at once where they are to remain—not left three or four days and then moved.

If the desire is to keep a quantity, houses are built of any desirable size, say thirty by thirty-six feet, of frame, two stories high, brick; paned and plastered—if a very dry situation, a cellar under—the floors not extended out to the walls by four inches—place three by four pieces against the walls in each story; board up to them five or six feet high; put dry leaves upon the floors and then pour the potatoes upon them to the depth of about five feet, and cover over with dry leaves or straw. It is best to have loose boards the whole length of the room, to put up to make bins four or five feet wide, for convenience in putting in and taking out. The lowest story that is used must have dead air spaces under the potatoes, four by five pieces laid down and loose boards laid on them, on which the potatoes must be put.

The cellar will not keep them well unless very dry. While the house is filling, the door and windows must be kept open and the fire going. As soon as placed in the house, the potatoes will commence "sweating," when every effort must be made to keep them well ventilated and dry. After the sweating process is gone through with, close the windows and shutters, except one window down a little for ventilation and kept dark.

The stove must be placed in the lowest story used; the heat will flow through the dead air spaces between the walls and the potatoes, so that the upper rooms will be warmer than the lower. The heat should be kept at about sixty degrees.

Dig the potatoes before touched with frost, although a slight frost

to kill leaves will not hurt. Potatoes, to keep well, should be grown on dry land. The chief sources of success are—ventillate well while sweating, keep regular heat, and exclude air and light.

If you desire to keep but a few for family use, any room in which the temperature is not allowed to fall below forty degrees will answer, though there will be some smell from them, especially if they do not keep well.

2. A writer in the *Farmer and Gardener* says: Be careful not to bruise them in digging or handling; after digging let them remain exposed to the sun until they are perfectly dry. Meantime, let your barrels be thoroughly dried by a straw fire inside them or otherwise. When both barrel and potatoes are dry, a thin layer of straw is laid at the bottom of the barrel, and the potatoes *laid*, not *thrown*, in, and on top another layer of dry straw, the barrels headed tight, and *carried*, not *rolled*, to a *dry* room, whose temperature is never allowed to go below sixty degrees. They are then used as required, care being taken not to disturb them to a greater extent than to obtain what are needed for use. They sweat after being barreled. Let them sweat! it will do no harm. Do not disturb them. The secret is: Do not bruise them; keep dry and warm.

3. A correspondent of the *Oskaloosa Herald* gives his method of keeping sweet potatoes through the winter:

"I use dry sand to put them up in. It don't matter how the sand is dried—in a kiln, in a log heap, or in the sun, so it is dry; that is all that is required. I prefer drying in a log heap, as it costs at least four times less, and is just as good. Any family that had a little room with a stove in it may keep a box or two of eight or ten bushels without much inconvenience. The boxes must be raised six or eight inches from the floor, and they must not be nearer than four inches of the wall. Fill the box with potatoes, and then put in sand—cover the potatoes with sand. I have also known them kept well in buckwheat chaff. In order to keep potatoes with success, there must be a thermometer kept in the room. The mercury must not sink below forty degrees; if it does, the potatoes will chill and rot; it also must not rise above sixty degrees, or they will grow. I never lost any of my potatoes only by letting the room get too cold. A thermometer only costs a dollar, and every man ought to have one."

Preservation of Green Corn, Beans, Peas, &c.—1. A common method of preserving green corn to make succotash during winter, is to boil it slightly in the ear, then remove the kernels from the cob with a sharp knife, dry them slowly, and pack in air-tight cans. Green

corn, Lima beans, peas, &c., may be preserved by drying them slowly at a low heat, until all their moisture has evaporated, after which they are to be packed in stone ware or glass jars, and put away in a dry pantry. A good method is to place the corn or beans in shallow plates or tins, and arrange them around a stove, or in a moderately warm oven, until they are thoroughly dried. When required for use, they should be steeped in warm water for about an hour before they are cooked. Beans and corn are very difficult to preserve in a moist condition in air-tight jars. Some spread the corn, after it is boiled and cut from the cob, on a cloth in a room where the air will circulate freely to dry. It is also kept sometimes, after being dried, in coarse cotton bags, hung near the stove, and occasionally shook up to ensure its being thoroughly dry.

2. Take sweet corn in the milk, that is, when fully grown and filled with milk, scald it in sufficient water to cover it, covering the pot with the husks. Take it from the cobs with the handle of a spoon. Spread it upon sheets in the sun for three or four days, stirring it very often. It may be covered with a musquito net, to keep flies off.

3. Boil the ear, and either dry in the cob, or shave from the cob and dry. Or shave from the cob without boiling and dry. Another method, said to be better, is to split the ear lengthwise into halves or quarters, and then dry cob and all. Or the ear may be broken up into short pieces, and thus dried.

4. When the corn is in good condition for eating, the grains being fully grown, husk, and, boiled just enough to cook the starch, or un-boiled, spread the ears in an open oven, or some quickly drying place. When the grains loosen, shell the corn, or shell as soon as you can. Then spread upon a cloth to dry in the sun, or on paper in a warm oven; stir often, that it may dry quickly and not overheat. It more resembles the undried by its being whole, is said to be sweeter, and retains more of its natural flavor by drying faster. When wholly dried, expose it to the wind by turning it slowly from dish to dish; the wind blows off all the troublesome white chaff.

5. Green corn may be preserved by packing it tightly in casks or barrels, and covering it with brine strong enough to keep cucumbers. The corn should be taken with the husk on. Corn thus prepared, if kept covered with brine, will keep in good order for a year or more, and will be sufficiently fresh for the table when boiled.

6. Cut raw from the cob, pack in anything convenient, stone or wood, a layer of corn half an inch in thickness, and a layer of salt not

quite so thick, and so on till your dish is full, covering the whole with salt. When wanted for use, soak in clear water twelve or fourteen hours, and cook as in summer. Always handy, and said to be good.

7. We have received the following, though we cannot say from what source, and, as we have not tried it, we cannot recommend it: Remove the kernels from the cob, pack in tin cans, hermetically seal, expose to steam or boiling heat about an hour and a half, then puncture the cans, and immediately seal the same while hot, and continue the heat for about two hours and a half longer. Afterwards the cans may be slowly cooled in a room at the temperature of seventy to one hundred degrees, Fahrenheit.

It is stated that "green corn thus packed and treated may be warranted to keep in any climate. Being preserved in its natural state, as near as possible, it retains the peculiar sweetness of fresh corn right from the growing field." Heated and seasoned, and it is prepared for the table, as it is fully cooked in the process of preserving.

8. Navajoe Indian method: When the green corn is fit for use, a pit is dug, from two to three feet in diameter at the top, and, gradually enlarging, is, at bottom, say five feet down, from six to eight feet in diameter. A large fire is then built near by, on which stones are heated, and when red hot, the stones and live coals are shoveled into the bottom of the pit, and sprinkled over with fine loose dirt. The corn is then thrown in with the husks on, just as it is pulled from the stalk, until the pit is nearly full. Then comes a thin layer of loose dirt, then hot stones enough to close the pit, and the whole covered with earth to retain the heat. When the whole cools off, which takes several days, the pit is opened, and the corn is found to be most delightfully cooked. When cool, the husks are stripped off and the corn dried in the sun. When thoroughly dried, the corn is shelled off easily, and is then packed away in bags for use. This is said to cure green corn better than any other method.

To keep Cabbage in Winter.—1. Cut the heads out with two or three courses of outside leaves upon them, fold close to the head, pack them in barrels or boxes, set them in a cellar, if the cellar is dry, keep outside leaves on top of the cabbage, to exclude enough air to prevent wilting. It is better still to pack the cabbage heads as above with nice damp moss, such as nurserymen use. It will preserve the cabbage just sufficiently damp and fresh all winter. Beets, carrots, celery, &c., may also be kept finely in this way.

2. Make a trench the width of a spade and a foot deep, into which, inverting the plant and wrapping the leaves closely, the heads are to be placed, leaving the stalks above ground. A little straw being thrown over, they are covered to the depth of four to six inches.

3. As late as the weather will allow, transplant firmly and as closely as they will stand together into trenches; raise a platform eighteen or twenty inches high over them of refuse posts, rails or boards, placing a few bean poles across them, and upon the whole throw a quantity of bean haulms, cornstalks, straw, or any materials of this kind, as a protection against the wet and frost.

4. Leave out till danger of frost. Then cut off the heads with a few coarse leaves, throw into heaps, and cover with a litter of some kind till winter. Then pile them in a ridge on the ground, three wide for the bottom course, two for the second, and one for the top. Pack them close, the largest at the bottom, the stem ends up. Cover six to eight inches, or more, with earth, without straw.

5. J. J. H. Gregory, of Marblehead, Mass., says: I have had considerable experience in this matter of keeping cabbages in the best condition possible over winter, as my business of seed raising has rendered this necessary; and the subject would yield quite a chapter; but at present let this suffice: Select a warm location, having a southerly exposure if practicable, under a cliff, where the snow will be likely to bank in winter; the soil should be light in character, and the ground well drained. Dig a trench six or eight inches in depth, and of width sufficient to take three rows of cabbages. Having stripped all but the last layer of leaves surrounding the heads, stand them in the trench in the same position in which they grew, crowding them as closely together as possible; then begin a second trench, or rather continue extending the width of the one already dug, throwing the earth taken from it directly on top of the cabbages already planted, and thus proceed with the whole lot to be buried. Do not fill up the open interval which remains between the bottom of the cabbages and the bottom of the trench; the air is a better non-conductor of heat than the earth, and hence the plants will be better protected with the space open. For this same reason, loosely headed cabbages require less covering than those more completely headed in, the air between the leaves protecting the former. Having completed the planting, tread the earth close against the last row planted, which will tend to keep them upright. Dig a small trench around the bed for draining purposes, throwing the earth on the edges of the bed, as these are most liable to wash, and hence require extra protection. Have a lot

of waste litter or seaweed at hand, sufficient, if litter, to cover the bed four or five inches in depth ; if seaweed, three inches will be sufficient. After the ground is frozen about through to the cabbages, scatter over the litter or seaweed as may be. If one has plenty of litter about, a foot of this will be sufficient protection without the previous covering with soil. The Savoy varieties require less protection than the drum-head. Six or eight inches of earth will protect as effectually as four feet, as I have proved by experiment."

Preservation of Pumpkins.—1. Decay naturally takes place in the pumpkin soon after the coming of cold weather. Placed on a shelf where they will be exposed to the cool air, but not exposed to frost, they remain some weeks without material change. Boiled until reduced to a pulp, and the moisture mostly evaporated, and dried in a slow oven until it is quite hard, it keeps well in a closely covered jar. Pared and cut into thin slips, it may be dried in the sun. The strips must be quite thin, the sun clear, and the atmosphere quite dry, to prevent moulding or souring in the process. Pumpkin may also be put up in cans, but success requires more care than in fruits. There being a very limited amount of sugar in pumpkins, it is deprived of the preservative influence of that substance, as occurs in fruits. The boiling must be continued until the moisture is mostly driven off, and the pulp is quite dry. As much sugar added as the taste will allow, greatly promotes security.

2. The *Germantown Telegraph* says: Gather with great care and leave an inch or two of stem with the pumpkin. Place on a shelf in a dry cellar, or, which is better, a dark closet, where the temperature is never down to the freezing point. By thus placing it without bruising, you may have pumpkin custard in August.

3. Select those good and ripe, wash clean, cut up with the rind on, or pare and cut into small pieces, having removed the seeds, &c.; stew soft, mash, and strain through a colander as for pies; spread thin, less than half an inch, on earthen plates, set in a moderately warm oven, and dry without scorching; then put it in a bag or jar and keep in a dry place. It is always ready and nice for sauce or pies. Soak over night in a little milk and if you have never tried it you will be surprised at its delicious flavor, some think superior to the fresh pumpkin. The flavor is preserved, and being dried very quickly, it is not at all soured, as is frequently the case when dried without being cooked. It is already cooked and needs only sugar, spice, &c., and is ready for use.

4. Peel and cut as for stewing, then slice very thin and spread on

tins or other driers, and put in the stove oven with a moderate heat. It will retain its flavor, and needs only to be soaked in water a few hours, and stewed in the same water.

Keeping Winter Squashes.—The New York *Tribune* says: There is just this one simple rule for keeping winter squashes:—Put them in a dry, warm place, and they will not rot. It is a warm, damp atmosphere, like that in most cellars, that causes decay. A dry stove room, or furnace heated room, which never gets cold, or a closet near the fire place, which never gets cool enough to freeze, are good places in which to winter squashes and pumpkins. They also keep well hung up in baskets and bags overhead in the kitchen, or on a hanging shelf. They should always be stored singly—never in piles—when you wish to preserve them a long time.

To Preserve Snap Beans and Green Shell Beans:—Prepare as for cooking, throw them into boiling water, let them stand five minutes, then dry in the sun, or, having the oven heated just hot enough to avoid burning or cooking them, spread on tin or earthen dishes, set them in the oven and let them remain till perfectly dry. Keep in bags or jars in a dry place, and you can have succotash in winter almost as good as in summer. Put them to soak over night in warm water and cook as usual. Some dry them without scalding, first in the sun, then in an oven.

2. Prof. Mapes states that snap beans, if picked in a dry day, and packed in dry, fine salt, will keep in the same condition through the winter.

Preservation of Tomatoes.—They are best kept fresh upon ice or in a cool, damp room. Cold alone is their preservative. The absence of sugar [in them] renders much more boiling necessary, to prepare them for air-tight preservation, than is required in most fruits. The time taken will depend altogether upon the juiciness; three or four hours will probably be requisite to concentrate the juice sufficiently; add as much sugar as the taste requires a few minutes before the boiling ceases. Sealed tight they keep unchanged through the season.

For preserving, prepare and treat precisely as brandy peaches, with the exception of using double the amount of sugar, and omit the brandy and water. For catchup, to a gallon add four tablespoonfuls of salt and an equal amount of pepper in kernel, and also of mustard and a little alspice. Boil an hour or more, then strain through a sieve, and put in any ordinary bottle corking tight. For pickling, green tomatoes, they having a bitter acrid taste, should be scalded in salt wa-

ter, afterwards cut in two crosswise, washed in cold water, and allowed to drain well. They are then treated as any other material for pickling.

Tomatoes may be dried similar to pumpkin: Scald and skin them, then cook them thoroughly and as dry as practicable without scorching, and dry in the sun or oven on earthen plates. When used they are picked to pieces, soaked in warm water, cooked five minutes, seasoned, &c.

For preserves the tomatoes may be sliced thinly and stewed in sugar, as any other preserves, using the very best kind of sugar, pound for pound. Of course remove the skin first.

Preserving Rhubarb.—Rhubarb may be canned with perfect success, thus retaining all the flavor and juices, and having it at all times fresh and ready for use. It is cheaper and much better than drying.

2. Prepare as for pies, then stew with one pound of sugar to five of rhubarb, and just water enough to keep them from burning until done. Dry on plates same as any fruit, and it will make as good pies or sauce as when green. Tomatoes cut in slices, and dried, mixed with the rhubarb, are fine.

3. To dry rhubarb, prepare it precisely as for pies, peeling the stalks and cutting in small pieces. Dry it in the sun or a moderately warm oven, being careful not to scorch it. Hasten the drying so as to prevent mould or partial decay. When fully dried, rhubarb may be kept in bags or boxes, as dried peaches or apples, and requires a little more time to scald it than when green, but it is easily prepared for use.

Preserving Celery.—Fill in the stalks taken elsewhere, between two standing rows, being careful to place the stalks upright, and not in contact with other stalks, having dirt well packed in between them. After the whole is prepared, the mound is well spanked with the spade—leaving the tops of the celery just peeping out of the apex; this is covered with straw or any dry garden haulm, and then a roofing of old boards complete the business.

Another plan is to allow the celery to remain in the rows where it grows, banking it up well and securing as above. The less it is disturbed the better; only protect it against moisture and atmospheric changes.

To Preserve Herbs.—All kinds of herbs should be gathered on a dry day, just before, or while in blossom. Tie them in bundles, and suspend them in a dry airy place, with the blossoms downwards. When perfectly dry wrap the medicinal ones in paper and keep them

from the air. Pick off the leaves of those which are to be used in cooking, pound and sift them fine, and keep the powder in bottles corked tight.

PRESERVATION OF FRUITS.

IN the preservation of fruit the great objects to be secured are the exclusion of air and the prevention of fermentation. Sugar is the chief agent employed as a syrup to exclude the air from the fruit, and it is a powerful antiseptic.

Peaches, plums, and such like fruit, may be preserved as follows: Sound fruit is first placed in a glass or glazed stoneware vessel, then boiling hot syrup, composed of one pound of white sugar to one pint of water, poured in slowly until it covers the fruit. Air bubbles will rise for a few seconds afterwards; when these cease, the cover, which should be air-tight, is then put on, and the jar put away in a cool, airy situation. Any number of jars containing fruit may thus be operated upon at the same time. The covers of these may be rendered air-tight by the use of India rubber under the flange, or pieces of cloth coated with wax. Of course the syrup should reach to the lip nearly, so as to avoid an air-space near the top.

CANNING FRUITS.

A more economical and superior method of preserving fruit, whereby its original flavor is secured, is as follows: First obtain a requisite number of cans, which may be of glass, or earthenware, or tin, or common wide-necked bottles may be used. Then take the peaches or other fruit to be preserved, peel them, take out the stones or seed, and prepare them as for eating at the table, with or without sugar, and while hot, fill the cans or bottles with the fruit and instantly seal them up tight. The plans of different persons vary somewhat.

The *Scientific American* gives the following method: "All that is necessary to succeed in preserving fruits in this way is to exclude the air from the jar. This is cheaply effected by boiling. The jars should be of glass, for through it the condition of the fruit can be seen perfectly and detected if it ferments, whereas with other material no warning is given until the vessel bursts and the material is wasted. if it has not been well prepared.

"Some prefer corks and cement for closing the mouths of the bottles or jars. Others prefer those cans which have india rubber gaskets in the mouths. A cheap and convenient way is to take a piece of stout fine linen, and cover thickly inside and out with a cement made of beeswax and resin. A good substitute for the latter article is a pitch made from coal tar. The fruit should be put in a pot surrounded by boiling water, and the jar filled within an inch of the top. If it is fuller, the air below, as it rises, causes the contents to overflow and wet the top of the jar so that the cement does not stick. When the fruit rises to the mouth of the jar, then is the time to apply the cover. Clap on the linen, covered thickly with cement, and tie it tightly. When the fruit is cold, the cover will be depressed an inch or more if there is no air beneath. If the cover lies flat, the air is not expelled, and the fruit will spoil.

"Another way to test the vacuum is by suddenly turning the jar upside down when cold. If there is much air within, it will be seen escaping in bubbles through the mass to the top (in this case, the bottom,) of the jar. There will be some air, at any rate; it is impossible to get a perfect vacuum in any vessel whatever. If the first trial fails the cemented cover should not be pulled off. Place the jar in warm water again, and bring it to a boil. If there is air below, the cover will rise like a light biscuit. Take a pin and make a small hole in the top, and it will fall; then, just at the moment the juice rises to the opening, or a little before, have ready a lump of cement, and clap it over the pin hole. If this is done dexterously, the operation cannot fail, and when cold the cover will show for itself whether it is tight or not. The necessity for waxing the cloth thoroughly and tying it tightly will be apparent when the pressure it has to sustain is borne in mind; that upon a jar two inches in diameter at the mouth being forty-five pounds. Fruit preserved this way is much cheaper and healthier than by the old-fashioned plan. So far as the palate is concerned, there is no comparison."

Another method: Select good, sound, ripe fruit, and put it up as speedily as possible after it is gathered. Peaches, pears, quinces, apples, cherries, sweet pumpkin for pies, tomatoes, and berries of all kinds, can be preserved fresh for years, if the following directions are observed:

Prepare the fruit by paring and stoning, or coring where necessary, and put it over a moderate fire in a brass or porcelain kettle, (the latter is best, as it does not discolor fruit,) with sugar enough to make sufficient syrup to fill all the cavities in the can when the fruit is in.

Have ready your cans, and, as soon as the mass is thoroughly heated through, skim out the fruit, and put it in cans quite hot, and pack it as tight as practicable. Then pour in syrup till it is as full as it can be, and permit the covering to be soldered on. The fruit will keep as long as the can remains *perfectly* air-tight. It is necessary sometimes when fruit is not sufficiently juicy to form syrup enough to fill the cans, to add a little water. Tomatoes need no sugar nor water. A wide-mouthed funnel just to fit the cans is convenient in filling; and it is best not to use an iron ladle or skimmer to stir or dip out the fruit, as it will discolor peaches and some other fruit.

Prepare your cans, if of glass, by filling them two-thirds full of water, then setting them in a boiler of cold or tepid water, that comes within an inch and a half of their tops, and bring the water to a boiling heat. Introduce the hot fruit while the cans are yet hot.

It is better to can all such fruits as peaches, plums, cherries, gooseberries, currants, blackberries, strawberries, tomatoes, &c., than to dry them, as drying must injure more or less the flavor of the fruit. And, after a supply of cans is once obtained, the cost of putting up is trifling, and with care the cans will last a long time. For very acid fruits, as pie plant, gooseberries, currants, &c., glass cans are decidedly preferable. Some kinds of fruit in glass cans should be kept in a dark place, or wrapped with paper.

Many kinds of fruit require no sugar to preserve them. Peaches are better canned without sugar, though some use four to eight ounces to every pound of fruit. Strawberries should have sugar. Peaches should be canned as quick as pared, or they will discolor. To have them very white and nice, some pare them under water.

It has been recently stated before the Polytechnic Association that the cans should not be sealed while they are hot. After being filled with fruit, they should be set into a vessel of cold water, which should be heated to the boiling point, and be kept gently boiling for twenty or twenty-five minutes, and then set off to cool. As the liquid cools, it will, of course, shrink, and the can is to be filled with liquid which has also been recently boiled, and then it is to be quickly sealed.

For cement to close fruit cans see chapter on "Cements." One thickness of stout cotton cloth, well covered with cement, drawn over the mouth of the can and tied tightly, is a good method, and generally sufficient. It is improved by applying another coat of cement after the cloth is tied on, and rendered doubly secure by putting a second waxed cloth over the first, and tying further down the neck of the jar. Stout manilla paper, instead of the cloth, and cement are said to an-

swer the same purpose. If the jar is first closed with a cork, it will prevent any moisture coming against the paper, in case it is turned on one side.

Cans sealed with cork and cement are opened by using any moderately heated iron to melt the cement, or by placing live coals on the cement, or by inverting the cans in a tin dish on a stove until melted.

HOW TO KEEP FRUIT, AS APPLES, &C.

The Worcester (Mass.,) *Transcript* gives the following hints: First, a dry rather than a moist temperature, between forty and fifty degrees, Fahrenheit. Second, complete exclusion of light. Third, exclusion of any circulation of air—not absolutely air-tight boxes or barrels, but as nearly so, at least, as such receptacles can be conveniently made. Fourth, an arrangement by which the fruits shall not press one another too heavily, half barrels or covered buckets, for pears especially, being preferable to any thing of larger dimensions. Rooms expressly for storing fruit are constructed on the principle of an ice house, or a refrigerator. That of the London Horticultural Society has double walls, eight inches apart, filled with dry moss. The contents of the structure are secure against frost, although the temperature outside may be five degrees below zero.

At the Russian court fruit is preserved by being packed in creosotized lime. The lime is slacked in water in which a little creosote has been dissolved, and is allowed to fall to powder. The bottom of a plain deal box is covered with it one inch high, and over it is a sheet of paper. Upon this the fruit, well selected and cleansed, is arranged; over this another sheet of paper, and on top of this another such stratum of prepared lime; in the corners a little finely powdered charcoal is put. The whole box is then filled in the same manner, and the well fitting lid nailed down. Fruit kept in this manner will remain intact at least one year.

Two or three "fruit houses" have been built within a few years in this country for the purpose of preserving fruit by cold, and they appear to have been successful. The temperature is reduced below forty degrees, without, however, allowing it to reach thirty-two degrees, which is the freezing point. If kept below forty degrees, it cannot ferment. Above thirty-two degrees, it cannot freeze. By the aid of ice on the one hand, and furnace heat on the other, the temperature is kept within the range of the eight degrees the whole year round. Any excess of moisture is avoided by the use of chloride of calcium

Excess of light is easily remedied. Nothing more seems to be necessary. All kinds of fruit, it is said, are kept perfectly any length of time.

The first fruit-house of this kind that we know of was built at Greensburg, Indiana, and the next on Kinsman street, Cleveland. The following is the substance of the Report of a Committee appointed to examine the process at Greensburg:—The fruit house is made of double walls of sheet iron, three feet apart, the space between being filled with dry saw dust. The bottom earth is packed tight, covered with pitch and coal tar an inch thick, and then filled to the floor with dry saw dust. The floor and ceiling are of galvanized iron, and the space between the ceiling and the roof is filled with ice. At the Greensburg house the ice melted about three feet in the year, the water being carried off by conductors.

In the preserving rooms are placed a tier of troughs, placed two inches above each other, in which is put chloride of calcium. This is prepared by dissolving marble spalls or common limestone in muriatic acid, thus forming fluid chloride of calcium. This is heated in a large pan of sheet iron until it becomes hard and dry, when it is broken into pieces and put into troughs in the preserving room. It has the property of absorbing the moisture in the air, and becoming again fluid. When this occurs it is again dried and broken as before. A carboy of muriatic acid will make chloride of calcium sufficient to take up eighteen gallons of water. The same solution is found in sea water, in the refuse of salt-pans, and is sometimes allowed to flow away as waste from chemical works.

The basis of the process is the principle enunciated by Liebig, that “decay is much retarded by the absence of moisture, and by the substance being surrounded by an atmosphere of carbonic acid, which prevents the oxygen of the air from coming in contact with decaying matter.”

The fruit, such as apples for instance, is placed in bins built one over the other in rows reaching to the ceiling. The dry chloride is placed in troughs to absorb the moisture given out by the fruit, and fans worked by a windmill on top of the house assist in driving the moist air towards the chloride, to be absorbed by it. In a room containing six hundred bushels of apples, about three gallons of water per week is taken up by the absorbent. A simple hygrometer is used to ascertain the degree of moisture in the room. It consists of a scales on one side of which is half an ounce of dry chloride of lime, with one ounce of rain water, balanced by a weight on the other. As

the moisture of the room increases or diminishes the weight of the chloride indicates it.

Fruit in ripening evolves considerable carbonic acid gas, and when fully ripe absorbs oxygen to an extent that hastens its decay. By the precautions taken to prevent the admission of fresh air, the atmosphere of the room becomes decomposed and the room is filled with carbonic acid gas to such an extent that an ordinary light will not burn in it. Thus the two conditions required to prevent decay are obtained; the moisture of the air is withdrawn and the fruit is surrounded with carbonic acid gas. In addition the low temperature of 34° is maintained.

The committee found in May quantities of the most delicate varieties of apples, as fresh as when first picked, together with large cans of cooked fruits and berries, that had been left open for some time without any evidence of fermentation. Grapes were also exhibited in May as fresh as when they were plucked from the vines.

GATHERING AND KEEPING APPLES.

There is scarcely an article of vegetable food more widely useful and more universally relished than the apple. Why every farmer in the nation has not a good apple orchard is one of the mysteries. Let every family lay in from two to ten barrels or more of apples, and it will be the most economical investment in the whole range of culina-ries. A raw mellow apple is digested in an hour and a half; while boiled cabbage requires five hours. The most healthful dessert which can be placed on the table, is a baked apple. If taken freely at breakfast with coarse bread and butter, with meat or fish of any kind, it has an admirable effect on the general system, often removing constipation, correcting acidities, and cooling off febrile conditions, much more effectually than the most approved medicines. If families could be induced to substitute the apple—sound, ripe and lucious—for the pies, cakes, candies and other sweetmeats with which their children are too often indiscreetly stuffed, there would be, says Dr. Hall, a diminution in the sum total of doctor's bills in a single year, sufficient to lay in a stock of this delicious food for a whole season's use.

It is becoming a well understood principle that pears are improved by being gathered before fully ripe. Some should approach nearer maturity than others. But early apples should be fully ripe, as a general rule, before gathering. Late fall and early winter apples should not be eatable when picked, and all the late winter varieties

should be gathered when too hard to yield to the pressure of the thumb, and always before heavy fall frosts. A dry time should be selected if possible. There will be a few specimens not yet mature, but you can afford to throw them out to save the best and the main crop. When a good keeping variety begins to drop freely from the tree, as is sometimes the case, secure the balance of the crop that remains on the tree as soon as possible; but they should not be mixed with those on the ground—not one should be saved with those picked. Windfalls will not keep, for, in addition to the injury sustained by the fall, they become heated by lying upon the ground exposed to the sun and hot air, and the ripening process already commenced, is hastening it to a rapid decay.

No matter how hot the weather is, an apple is always cool while upon the tree, and in that condition should be taken care of.

Heat hastens the ripening, cold retards it. Apples should therefore be kept cool, barely so as not to freeze. A minimum temperature of thirty-four degrees is probably about right, with as little fluctuation as possible.

The cellar should be cool, always dry and dark, and frequently aired when the outside temperature will allow of it.

A foreign fruit grower says: Fruit to keep over should not be gathered till near but not fully ripe. This is best known by lifting up the fruit, and if it separates easily from the tree, the sooner it is carefully gathered the better, choosing the dryest part of the day; carefully handling it so that it may not be bruised. The fruit should then be placed in thin layers on a dry floor; if room to place them singly, so much the better. In a fortnight they may be stored away, rejecting any that appear injured. There are many modes of keeping, all good in their way; some laying them in layers with dry ferns, which is a most excellent mode; but the best is to wrap each fruit singly in soft paper, and lay them in layers, with plenty of pit or rabbit sand, dried in an oven. All places where fruit is stored should be dry and cool, and the light excluded. Some, after the fruit is wrapped in the paper, put them into glazed earthenware jars, packing them in dry sand, with the best effect.

Professor Loomis says: Apples intended to be kept for a time should be sound, should not be shaken off the tree, nor be permitted to fall naturally, but be carefully plucked by the hand. The bruises they receive in falling against the limbs of the tree, or upon the ground, induce early decay. For the same reason they should not be allowed to drop heavily into barrels or bins. Careful handling is a

material element in keeping fruit of all kinds. Barrels are not the best receptacles for apples for the winter. They are apt to "sweat," and, pressing heavily upon one another, decay is readily communicated; at the same time it is inconvenient ascertaining whether they are keeping or not. It diminishes the chances of decay by contact to separate each layer by a layer of leaves or oat chaff; but the best means of preservation is believed to be placing them upon open shelves at a distance of one to three feet from the cellar floor, or as near the floor as possible without dampness. They decay less, are not liable to sweat, and can easily be inspected for the purpose of removing the imperfect ones.

The editor of the *Gardeners' Monthly* says, whenever a quantity of fruit is piled up in a heap it begins, what is called in common language, to sweat. This sweating brings an oily substance to the outside. Sweating will also occur without the fruit being piled up as spoken of, but it is more slow; and if it be thinly on a shelf, it is in its most legitimate way. The sweating coats the skin with a sort of varnish, which resists the action of the atmosphere, and certainly promotes the keeping qualities of the fruit. This varnish ought not to be removed by any means, handling being one of the certain means of doing so. Let the fruit, therefore, be placed at first simply on the shelves, and little else will be wanted but looking over and picking out decayed fruit, and the place being kept cool and well ventilated, there is a tolerable certainty of their keeping well, other things also being favorable.

The editor of the *Am. Agriculturist* thinks the best method of keeping winter apples for home use, also for shipping, is to pack them in barrels in oats, and keep in a close upper room. He says: "With the thermometer at zero out of doors, they will not freeze. If they should be frosted a little, it is drawn out so gradually by the oats that they are not injured. We have never seen any method so satisfactory as this for transporting apples, and none better for preserving them in a good condition until spring."

Some pack in nice, sweet hay, cut fine; some in rice hulls, where they can be obtained; some in dry hard wood sawdust; some in dry apple tree or forest leaves; some in plaster of Paris; some in buckwheat hulls; some in chaff; some in dry turning shavings. Cotton, coal, clay and paper are also used; but Prof. Mapes says these will extract flavor. Wm. S. Carpenter says: Fine cut hay is good, so are leaves; rice hulls are the best. Sawdust is not good, as it is apt to impart its flavor to the fruit, and if buckwheat bran is good, it is un-

like all other bran. Prof. Mapes says, if sawdust is to be used, it should be thoroughly baked. With any of these materials apples are usually packed in alternate layers, separated from the wood and sometimes entirely from each other. Oats, hay, leaves, rice hulls, and plaster of Paris appear to be best recommended. Salt barrels for packing apples in have been recommended. Bad cellars and unclean barrels frequently extract the flavor of fruit.

A writer in the *New York Tribune* says: "There is one mode of preserving apples which has been practiced here for many years, and which I have tried with complete success, viz: Place them on a floor in a room, or in any other cold situation, early in the winter, and cover them well with some kind of linen, and leave them so through the various changes of winter. I have known them to come out in the spring rather improved than otherwise." And a correspondent of the same paper says: Winter apples, picked some five or six weeks before the usual time of gathering, will keep sound some months longer than those allowed to ripen on the trees.

Preparing and Keeping Apples for Market.—If they are to be transported any distance, the fruit should be picked from the tree by hand, and carefully placed in the barrels, (not poured in,) being packed closely and tightly. The barrel should be clean, and, particularly if a flour barrel, thoroughly washed and scrubbed with a broom till not only the loose flour is removed, but *all* the flour. If any remains, in the jostling of carts or cars it scatters among the apples, and, adhering to the moist surface, soon moulds and decays, setting up general decomposition throughout. A flour barrel, unless thoroughly free from flour, is one of the most undesirable receptacles for fruit or vegetables of any kind. The barrels and the apples should both be perfectly dry when packed; afterwards the barrel should be left open till the immediate time of removal. It should be so completely filled and tightly packed that, when the head is pressed in, there shall be no motion of the apples on one another as the barrel is rolled along or turned upon end.

In cargoes of ice which have been shipped from Boston to the East Indies, have frequently been placed considerable quantities of apples, which have reached their destination in as good condition as when first shipped.

Dried Apples.—As success in this case depends solely upon evaporation, nothing more is requisite than to secure the greatest amount of sunlight upon the greatest extent of surface.

Apples in Cans.—They should be boiled about fifteen minutes, if

very juicy, half an hour, with a small amount of sugar. They are best kept on the cellar floor on account of its cool and uniform temperature. It is better not to handle or move the cans until taken for use.

Apple Sauce and Butter.—Boil unfermented or new cider down six gallons to one. Boil apples and a small proportion of quince and place in the syrup.

Machine for Quartering Apples.—Take a piece of board—say three feet long and six inches wide,—make a hole through one end four and a half inches in diameter (more or less, as you please.) Break the edge off an old scythe, two inches longer than the hole in the board is in diameter, and have *two* of these edges. Take an old ax and cut each scythe edge half in two, one from the edge towards the back, the other from the back toward the edge, and cross in the center when you have cut them. Put this knife across the hole in the board, by sawing places half through, fasten on a lever eighteen inches long, to press the apple through, and it is done. This is easily made, and works first rate.

PRESERVATION OF PEARS.

With very few exceptions this fruit should be picked before it is perfectly matured. The house-ripened pear is generally infinitely superior to that which is allowed to hang too long upon the tree. The fruit should be fully grown and beginning to ripen when plucked, else it will wilt and be insipid. A good rule is derived from the easy separation from the stem. When fruit begins to fall freely it should be gathered. When harvested, the pears should be placed in a dark moderately cool, dry apartment, to be preserved a long time.

The following is a plan recommended by the *Germantown Telegraph* as simple and efficacious: Apples and pears should be placed in glazed earthen vessels, each containing about a gallon, and surrounding each fruit with paper. These vessels, being perfect cylinders, about a foot each in height, stand very convenient upon each other, and thus present the means of preserving a large quantity of fruit in a very small room; and if the spaces between the top of one vessel and the base of another be filled with a cement, composed of two parts of the curd of sweet milk, and one of lime, by which the air will be excluded, the later kinds of apples and pears will be preserved with little change in their appearance, and without any danger of decay from October till February and March. A dry and cold situation, in which there is little change of temperature, is the best for the vessels; but the merits

of the pears are greatly increased by their being taken from the vessels about ten days before they are wanted for use, and kept in a warm room, for warmth at this, as at other periods accelerates the maturity of the pear.

A writer in the London Horticultural Society's Proceedings, says: I find bran the best of all substances for packing of late apples and pears in shallow boxes. They want no care afterwards, as all sweating and decay are dried up. A Mr. Kidd of England, who for twenty years has made it his business to transport fruit, says: I have found no better method in all my experience, with all kinds of fruit varying in distance from fifty to five hundred miles, than simply box, soft paper, and sweet bran, the fruit carefully wrapped and placed in layers. He says: With neat hands, the bloom is preserved on the grape, and may be sent any distance; but with clumsy hands, quite the contrary, and often an entire failure.

Dried Pears.—Pears may be dried in the same manner as apples, either by solar heat or in a slow oven. For preserving in cans or in syrup, pears are one of our best and most manageable garden products. The large amount of sugar in its composition renders its drying or preservation very certain. Perhaps the best method for common use is to remove the rind, cut into thin slices, and dry in the sun in the same manner as apples.

Canned and Preserved Pears.—Being pared and cut into pieces of moderate size, say quarters, they are boiled, with about half weight of sugar, fifteen minutes or so, not enough to reduce the pieces to pulp at all, but sufficiently to cook thoroughly, and put into heated cans and sealed quickly, as previously mentioned. If to be kept as a preserve in syrup, a little more sugar may be required. It is said they are very nice preserved with the addition of ginger root, which give them a similarity to East India Preserves.

PRESERVATION OF PEACHES.

The peach in its general qualities so nearly resembles the pear that the methods of preservation answer for both. Slight allowance in the time of boiling may be made for the superior juiciness of the peach.

Canning and Preserving Peaches.—A friend has adopted the following method: The cans are filled with the fruit cut in halves, then as much cold water is poured in as the cans will hold. The cans are then placed in a boiler with cold water nearly to their tops, and they are left over the fire until the water in the boiler boils long enough to make

the peaches *hot* through, if they do not actually boil. Filling the cans with water prevents the juice being drawn out of the peaches. When the fruit is to be placed on the table, it is taken out of the water and sugar added, the same as if it had not been cooked at all.

Another, alluding to this method, makes the following remarks: "I prefer doing them with half pound of sugar to one pound of fruit; they are then just right for eating."

Another method that has been practiced is as follows: Select good solid peaches, pare and take out the stones; take one pound of the parings, one pint of water, half a pound of white sugar, boil well together for forty minutes in a brass kettle, then strain through a cloth; let the syrup cool, fill the jars with the pared peaches, pour in the syrup and the jars are full. Take a convenient vessel, put a cloth in the bottom, set in the jars, then fill the vessel or the space around the jars with cold water, to come within three inches of the top of the jars; set on the stove, bring gradually to a boil, boil well for thirty minutes; take the jars out of the vessel and seal while hot.

A writer states that, peaches, if preserved whole, should be gathered before they are fully ripe, pared and cooked tender in a little water. If in quarters, crack the pits of half the peaches and add to them. Let the syrup simmer down quite thick before adding it to the fruit, and when cold, cover tight and keep free from heat and moisture.

Dried Peaches.—To dry peaches very nicely, pare and quarter and string on threads so as not to touch each other. Try it. Peaches may be dried without peeling. Make a lye of tolerable strength by boiling wood ashes in water. While the lye is warm, but not so as to cook the peaches, immerse them and rub them in it awhile and then wash them in clear cold water. Every particle of furz will be removed, and only a thin skin remain. They can then be cut and dried in the usual manner. They thus lose nothing of their sweetness by peeling, and are said to be of the best quality for all cooking purposes.

Brandy Peaches.—Remove the skins by pouring on boiling water. Make a syrup of half a pint of water and half a pound of sugar to one pound of peaches. When boiling put in the prepared peaches and boil till tender. Removing the peaches to cool, continue the boiling of the syrup until it becomes quite thick, and add an equal amount of brandy. Having placed the cooled peaches in a jar, put in sufficient of the brandy syrup to completely cover the fruit. When cold secure the mouth of the jar as for jams.

Another way: Wipe, weigh and carefully select the firmest fruit;

have ready a quarter of their weight in powdered loaf sugar, put the fruit in a vessel that closes tightly, throw the sugar over and cover with brandy. Place a piece of double foolscap under the cover, and place the jar in a saucepan of water until the water is quite hot, but not boiling; when cold, tie the cover down tightly so that no air can penetrate.

PRESERVATION OF QUINCES.

Though a hard, firm fruit, with a glazed and somewhat oily skin, the quince has but feeble powers of endurance. Kept dry and cool, it remains a few weeks or perhaps, under very favorable circumstances, months without decay. It dries well in the sun in the same manner as apples, but is most generally used when preserved with sugar as peaches and other fruit.

Quinces preserved whole: Pare and put into a sauce pan, with the parings at the top; then fill it with hard water; cover it close; set it over a gentle fire till they turn reddish; let them stand till cold; put them into a clear, thick syrup; boil them for a few minutes; set them on one side till quite cold; boil them again in the same manner; the next day boil them again until they look clear; if the syrup is not thick enough boil it more; when cold, put brandied paper over them. The quinces may be halved or quartered.

PRESERVATION OF PLUMS.

This fruit possesses the excellencies of both the pear and the peach, and from its similarity in juiciness and saccharine matter preserves equally well in the various modes by the same treatment.

A correspondent of the *Moniteur Scientifique* says plums may be preserved for months in vessels filled with sand, hermetically sealed, and buried in the ground.

To preserve purple plums make a syrup of clean brown sugar; clarify it; when perfectly clear and boiling hot, pour it over the plums, having picked out all unsound ones and stems; let them remain in the syrup two days, then drain it off, make it boiling hot, skim it, and pour it over again; let them remain another day or two, then put them in a preserving kettle over the fire, and simmer gently until the syrup is reduced, and thick or rich. One pound of sugar for each pound of plums.

officious attendants upon the occasion, and by the mother, perhaps, subsequently, as an indication of hunger or want of food. Consequently, the washing and dressing are scarcely completed before the nurse, if present, or some newly-made "auntie," surcharged with benevolent solicitude, bustles about to prepare the repast. And this generally consists of molasses and water—that mixture of abominations, as the late Dr. Meigs called it—so intimately associated with flatulent colic, or a griping, and necessarily a cross baby at once. Here the impulses of nature should be obeyed, and her promptings and promptings should be followed, by placing the infant to its maternal bosom only, and as soon as she is able to receive it. Instead of so doing, the nurse, not unfrequently, in addition to molasses and water, resorts to *pay*, or to a portion of that which has been prepared for the mother, which usually contains some one of the spices, and sometimes wine or spirits. By forcing upon the infant thus early such articles, and continuing their use during infancy, we deprave the appetite, and injure its tender organization at the same time, and incorporate with its very existence a desire for these unnatural agents, which desire is apt to strengthen as age advances, until the baby-boy, thus trained, if he live to manhood, is swallowed up in the vortex of intemperance or dissipation.

The substances of which this food is generally composed are crackers, rusk or flour in some form, made into a pap, and sugared, and no sooner is it received into the stomach than commences the process of fermentation. The gas which is evolved during this process, being confined within the stomach and bowels, produces flatulent or wind colic, acid eructations, swelling of the abdomen, and sometimes "inward fits," or open convulsions.

Infants fed upon these unnatural and improper articles, are affected, more or less, with green, watery stools, griping pains, and vomiting, their milk strongly curdled, etc., to correct which a little lime-water, with spiced syrup of rhubarb, and compound tincture of cardamoms, or even ginger-tea, with a little supercarbonate of soda, will answer a better purpose than stronger preparations.

But if, from exhaustion or other cause, the mother is not able to nurse her infant at once, it is much better to suffer it to rest quietly for six or twelve hours than to feed it with such indigestible articles as above-mentioned. The mother, however, can generally be prevented from falling into this state of exhaustion, if properly sustained by some nicely-prepared cream-toast, toasted bread and crackers, steeped in light wine, etc., etc.

If not, or from any other cause, the infant cannot receive suitable nourishment from its mother, we should use fresh milk from a healthy young cow, and water equal parts, or one part of thin cream and two parts of water, sugared, and but a few teaspoonfuls given at a time, and at intervals of at least two hours. Then, if for the want of the reception of certain saline matters contained in the first milk of the mother, the *meconium* should not pass from its bowels, it may become pardonable to give ten drops (not a teaspoonful) of castor oil, and repeated, if necessary; but a small enema of warm water or molasses and water, will answer the purpose much better than if put into its stomach.

THE KITCHEN GARDEN.

In the *Middle States*, the work of this month does no vary materially from the month just closed. *Cabbage*, for winter use, may head if planted at once. *Celery*, earth up; plant for later use. *Endive*, plant. *Beans*, Bush and Snap, plant; tender "snaps" gathered late in autumn, may be preserved in strong brine (salt and water) for winter use, and vary but little from those freshly gathered. *Lettuce*, sow in drills to head. *Peas*, sow; this vegetable is a delicacy in autumn, and should more frequently appear at table. *Landreth's Extra*

Early, sown latter end of the month and beginning of next, perfect before frost. *Spinach*, sow for autumn use; for winter use, sow next month. *Radish*, sow the Spanish for winter; Golden Globe and Red Turnip-rooted for autumn use. *Ruta Baga*, sow without delay, if not already done. Should the ground be dry, work thoroughly, and sow in the dust; the seed may vegetate with the first shower; a roller to compress the soil sometimes promotes vegetation; but there is this disadvantage—if heavy, dashing rain immediately ensues, the ground packs and the seed is lost. *Pomeronian Globe* and *Anber Globe Turnips*, sow early in the month; the *Early Dutch* and *Red-topped*, both strap-leaved varieties, may be sown until the first of September, though it may be well to sow at least a portion earlier, as at a late day it is difficult to remedy a failure. Read remarks under head of July.

In the *South*.—*Cabbage*, seed sow, to head in November; *Landreth's Large York* is proper; the *Early Dwarf Flat Dutch* is also an excellent variety to sow at this season. *Broccoli* and *Carliflower*, sow, and transplant from an earlier sowing. *Onions*, plant sets for autumn. *Carrots*, sow. *Squash*, sow. *Itada Baga*, sow, to make up deficiencies in July sowings. *Turnips*, for table use, sow at short intervals. *Potatoes*, plant for winter use. *Lettuce*, drill for heading. *Radishes*, sow from time to time. *Beets*, may be sown for the winter supply. Seeds directed to be sown this month it may be necessary to defer until the next, by reason of heat and drought. Let the young gardener be not disheartened—ultimate success will attend persevering efforts. *His first care is to provide reliable seeds*, then onward should be his motto.

HORTICULTURAL.

REMOVING TREES.—A correspondent, who lives in a suburban village, asks us as to the best time of the year for removing trees. Almost any time will do, we answer, except in summer. Even large trees, whether evergreens or deciduous, can be safely removed, and the most of the roots preserved, if a moist day be selected. In desperate need try a moonlight night. It is the sun that does the mischief. Tree roots stand currents of hot air about as well as fish do. Small trees are better every way—if one can wait. The man who has not yet learned the pleasure of watching growth has one pleasure yet in store for him, if he will but put himself in the way of it. A love of planting comes with the practice of it—like any other virtue. Give the roots plenty of room, and observe the precautions we have mentioned, and your trees will live, while other trees, without these precautions, even if planted in late fall, or early spring, will die.

OUR NEW COOK-BOOK.

Every receipt in this Cook-Book has been tested by a practical housekeeper.

MEATS.

Beef Pie.—Take cold roast beef or steak, cut it into thin slices, and put a layer into a pie-dish; shake in a little flour, pepper, and salt; cut up a tomato or onion, chopped very fine, then another layer of beef and seasoning, and so on until the dish is filled. If you have any beef gravy put it in; if not, a little beef dripping, and water enough to make sufficient gravy. Have ready one dozen potatoes, well boiled and mashed, half a cup of milk or cream, and a little butter and salt; spread it over the pie as a crust, an inch thick; brush it over with egg, and bake it about twenty-five minutes.

Making Hash.—Put a teacupful and a half of boiling water into a sauce-pan, and make a thin paste with a teaspoonful of flour, and a tablespoonful of water. Stir it, and boil it three minutes. Add half a teaspoonful of black pepper, rather more salt, and one tablespoonful of butter. Then chop the cold beef into a fine hash, removing all tough, gristly pieces; put the meat in a tin-pan, pour over it the gravy above mentioned, and let it heat ten minutes or so, but not cook. The reason so many people have poor hash is that they cook it too much, making it hard and unpalatable, or they use tough pieces of cold meat, or they put in too much water, and make it rapid. If preferred, add equal quantities of chopped boiled potatoes; and if you have the gravy of the meat of yesterday's dinner, you may use that instead of the made gravy, and you will need less salt, and pepper, and butter.

To Use Cold Chicken.—Two receipts, one is called "fried chicken," and the other "chicken fritters." For "fried chicken," cut the chickens into quarters, and rub each quarter with yolk of egg. Mix some bread-crumbs with pepper, salt, nutmeg, grated lemon-peel, and shred parsley; cover the chickens with this, and fry them. Thicken some gravy with flour, and add Cayenne pepper, mushroom catchup, and a little lemon-juice. Serve the chicken with this sauce. **Chicken Fritters.**—Make a batter with four eggs, some new milk, and rice flour; to this add a pint of cream, some powdered sugar, candied lemon-peel, cut small, fresh lemon-peel, grated, and the white parts of a roasted chicken, shred small; set these altogether on a stove, and stir well for some time. When done, take it off, roll out the mixture, cut it into fritters, and fry them. Put sugar on a dish, lay the fritters on it, strew sugar over, and serve them hot.

VEGETABLES.

Cooking New Potatoes.—New potatoes, when they first appear, are considered a delicacy, though not so wholesome as the old, unless they are perfectly ripe, and can be cooked without being made waxy. If they are plainly boiled, a sprig of mint will be found a most pleasant addition. The following is an excellent though more elaborate way of dressing them:—Choose the potatoes as nearly of a size as possible; wash them, and rub off the outer rind; then wipe them dry with a clean napkin. Put one quarter of a pound of fresh butter into a stew-pan; set it on the fire, and, when it boils, throw in the potatoes. Let them boil in the butter till they are done, taking care to toss them every now and then, so that they may all go successively into the boiling butter. They must be carefully watched, because if done too much they shrivel up and become waxy. When the fork indicates that they are done, they must be taken out before they lose their crispness, put into a dish, and some salt sprinkled over them. As soon as they are taken from the boiling butter, a handful of parsley may be thrown in, and, after it has had a boil or two, laid upon the potatoes as a garnish. They must be eaten immediately. This is a beautiful dish to serve up with fish, or it may be eaten alone. The butter in which the potatoes were dressed may be poured into a jar, and serve again for the same purpose. Old potatoes may be cut into round pieces, about the size of a large walnut, and dressed in the same way.

Tomato Stew.—Take eight pounds of the plate of beef, put it on to boil in a gallon of water, with a dozen of tomatoes, the same of okras, six potatoes, cut small, two carrots, cut lengthwise, two onions; season it to your taste with pepper and salt; let it stew slowly four hours; skim all the fat off the gravy, and garnish the meat with the potatoes and carrots.

Tomatoes au Gratin.—This simple and delicious dish is made by cutting some ripe tomatoes in half, putting them in a buttered dish with some bread-crumbs, butter, pepper, and salt, and baking till slightly browned on the top.

Tomato Sauce.—Take any quantity of ripe tomatoes, put them into an earthen jar, and place them, covered over, in a hot oven till perfectly soft; then rub them through a fine sieve, to keep out the seeds and skin. To every quart of juice add a clove of garlic, or, if the flavor is preferred, two shallots, bruised, a quarter of an ounce of ginger, and the same quantity of black pepper, and a tablespoonful of salt; boil for about twenty minutes, and bottle, cork down, and wax it at once. Some like the addition of vinegar or lemon-juice to the same; others prefer it without. If liked, the juice of two lemons may be added to the above, before boiling.

Baked Corn.—Take six ears of field-corn, or twelve ears of sugar-corn. Cut the grain partly off, and scrape the rest; add one tablespoonful of butter, a tablespoonful of sugar, and a teaspoonful of salt. Rub these well together, and add a pint of new milk. Bake in a dish that you can set on the table without disturbing it.

Corn Fritters.—Grate six ears of corn; add one tablespoonful of flour, and two eggs; pepper and salt to your taste; to be fried like oysters.

DESSERTS.

An Excellent Cream Cheese.—One quart of good cream. Put a quart of good cream aside to become sour and very thick; then lay a piece of thin calico inside a small hair-sieve, taking care that the calico comes quite to the top, and rather above it, in order that you may be able to pull out the cheese without any difficulty. Let the sieve stand upon a dish; pour the cream into the sieve, and leave it to drain. Pour away the whey from the dish every morning. In about three days the cheese will be a proper consistency, and fit to eat—as thick as butter, and very delicious. If the cream will not go into the sieve at once, pour it in during the day, as the rest sinks from the whey leaving it. At Dieppe, little baskets are sold, heart-shaped, for making cream cheeses, and answer the purpose exceedingly well, being very open, so that the whey drains quickly through the calico into the dish.

Another.—Take three gills of thick cream, stir into it a tablespoonful of salt. Tie up the cream in a cloth, and let it drop for three or four days, changing the cloth every day. It must be hung upon a nail to drip, and when ready, on the third or fourth day, put it into a wooden mould, and press for one hour. It will then be ready for eating.

Fruit Jelly.—Take two quarts of red currants, two quarts of raspberries, pick and bruise them, and put them into a flannel bag to drain, which should be done the night before they are wanted. The fruit should be quite ripe. Then clarify some isinglass, according to the size of the mould (which must be of earthenware,) have some clarified sugar to make it rich, and put it in ice to cool.

Gateau de Pommes.—Boil a pound and a half of lump-sugar in a pint of water till it becomes sugar again; then add two pounds of apples, pared and cored, the peel and a little of the juice of two small lemons; boil it until quite stiff, and put it into a mould. When cold, it should be turned out, and, before being sent to table should have a thick custard poured round it. The cake will keep several months.

Apple Cream.—Boil twelve apples in water till soft, take off the peel, and press the pulp through a hair-sieve, upon half a pound of pounded sugar; whip the whites of two eggs, add them to the apples, and beat all together till it becomes very stiff, and looks quite white. Serve it heaped up on a dish.

Orange Pudding.—Grate the peel of three oranges into a pint of good milk, with three ounces of sugar, and the crust of a twopenny loaf, and the yolks of four eggs; let it boil, steam it through a cloth, add the juice of four oranges, and bake it half an hour.

PRESERVATION OF CHERRIES.

Cherries are best kept as a fresh fruit by being placed in an ice chest with little exposure to air. If the skin is not broken, and particularly if the skin is firmly set, they may be kept for several days. Cherries may be dried either in the sun or in a slow oven, having first been boiled a few minutes with one-fourth weight of sugar. In this, as in the following method, the stones should be removed. For preserving in cans, add half weight of sugar, heat slowly until it is melted, then boil briskly for fifteen minutes. In the meantime, heat the cans in water up to boiling, and put the fruit into the cans while in the heated water, and seal immediately.

For bottling cherries, says the London *Field*, try the following, and you cannot fail to have delicious fruit for tarts through the winter: To every pound of fruit add six ounces of powdered lump sugar. Fill the jars with fruit; shake in the sugar over, and tie each jar down with two bladders, as there is danger of one bursting during the boiling. Place the jars in a boiler of cold water, and, after the water has boiled, let them remain three hours; take them out, and, when cool, put them in a dry place, where they will keep over a year. We have tried this recipe for several years, and never found it to fail.

PRESERVATION OF GRAPES.

The first great requisite for keeping grapes well is to have them well grown and well ripened. The stems should not be green, but full maturity indicated by their having become to some degree the same color as the grape. The grapes should be full sized, having been grown on well cultivated and well pruned vines. After this, it is not essential how they are kept, provided they are in a cool, rather dry apartment, and not placed in large masses in contact. Some delicate varieties do better by being hung up, so that the berries may hang apart, and not touch each other.

Small wires of sufficient stiffness, and a few inches in length, are bent into hooks in the shape of the letter S; one end is passed into the smaller end of the bunch, and the other placed upon a suspended hoop.

It is hardly requisite to remind those accustomed to the successful keeping of grapes of the necessity of careful picking, and the removal of imperfect or decayed berries. Most of our American varieties may be easily kept packed in cotton batting or dry maple leaves. Chaff would

do, but would be liable to stick to the grapes. They should be kept in a cool place, but a slight frost will not injure them if they have become fully ripe. A good way for keeping them is as follows: Place them in broad, shallow boxes, about six inches deep, with a white sheet of unsized paper on the bottom, and between each layer of grapes. Set the box uncovered in a dry, open place for about ten days, till all the surplus moisture has evaporated; this will prevent future moulding and decay, and is very important. Then cover the boxes with covers which have been previously made to shut tight. Place them in a cool cellar, or in a garret not subject to severe frost, and they will keep till spring as fresh as when packed away.

A convenient size for the boxes is two feet square and six inches deep. These are rather better than tubs made from barrels cut in two, by allowing the moisture more readily to escape. Baskets for packing should be avoided, as, by yielding, they bruise the fruit. A convenient way for gathering is to suspend a light shallow box, holding about half a bushel or less, by means of a strap to the neck, leaving both hands at liberty. In this box they may be carried to the place of packing.

The directions given by Prof. Loomis are as follows: In gathering grapes care should be taken that they are perfectly dry. They should be taken off in clusters, handled tenderly, and all unripe, immatured, decayed, or injured berries removed, as well as projecting and surplus portions of the stem.

They are packed in layers in boxes, having a paper over the bottom of the box, a paper between each layer, and one over the top. The bunches are not to be crowded, nor left so loose as to slide about the box when being moved. For market, the boxes contain about fifty pounds; for keeping for future use, ten pounds. The boxes should be put in a cool, dry place, free from the sun, and at as even a temperature as possible, and kept closed until opened for use. Cotton has been used instead of paper for packing, but paper is found to answer every requisite. Thus treated, grapes may be kept till the approach of the warm influences of spring.

Put up in sealed cans with half weight of sugar, grapes keep well throughout the year. Considerable boiling renders the preservation more secure.

It is said that of grapes packed in boxes, one foot square and six inches deep, admitting three layers of clusters, and kept in a cool, dry cellar, so cool during the winter that water standing in a pail would freeze half an inch thick, those packed with alternate layers of grapes

and fresh grape leaves kept well until about the last of December ; those packed with alternate layers of grapes and sheet wadding kept tolerably until about the middle of December ; and those packed with alternate layers of newspapers and grapes, by changing the paper and repacking, kept until the fifteenth of March, perfectly plump and fresh, and most of the stems fresh and green, and would have kept much longer.

It has been stated that "grapes are very easily preserved all winter by packing when thoroughly ripe in a barrel, with kiln-dried sawdust between the layers of grapes, keeping the barrels in a dry cellar, secure from frost."

Mr. Pardee, of New York, says the best method is, to gather the grapes between three and four o'clock in the afternoon of a dry day, taking great care to have them all ripe, and none over-ripe, cutting out all imperfect berries. Then spread them on a floor for a few days, after which they are to be put in boxes with a little cotton, and placed in a cool, dry room.

Another way is to put the bunches carefully in one gallon stone jars, and bury in trenches in the ground with eight or ten inches of earth over their tops, which are first covered with boards. The bunches must be perfectly sound and ripe, and gathered when the weather is dry, and they will keep without any further trouble.

The French preserve grapes the year round by coating the clusters with lime. The bunches are picked just before they are thoroughly ripe, and dipped in lime water of the consistency of thin cream. They are then hung on wires, and when dry are dipped the second time, and then hung up to remain. The lime coating keeps out air, and checks any tendency to decay. When wanted for the table, dip the clusters in warm water to remove the lime.

In the south of Russia, they are gathered before they are quite ripe, put into large pots, so filled with millet that each fruit is separate, and the pots are covered so as to render them air-tight. They are sent in this way to the markets of St. Petersburg. After remaining thus for a whole year, they are still very sweet, all their sugar being developed by the ripening process in the pots.

PRESERVING CURRANTS.

This fruit, from the large size of its seeds, compared with the berry, is not so desirable to can, or as a jam. It is however one of the most valuable of garden products for jelly and wine, which, in addition to

their edible excellence, hold a high place in the materia medica. Currants, to be dried in the sun, should, like apples, have a good southern exposure, with free access of air. The only care needed is that the drying be thorough. Another method of drying is to boil with one-fourth weight of sugar for about half an hour to an hour, then spread on plates, and dry in the sun or in a slow oven. For cans the flavor is improved by adding one-half weight of raisins. The strength of the acids in currants renders the use of tin cans objectionable. Many prefer to can them green.

Currants may be kept green for any length of time, it is said, in as good condition as when gathered, by the following process: Pick the fruit when fully grown, dry the surface well without shrivelling, and cork tight in glass bottles, covering the corks with sealing wax; then bury the bottle to the neck in sand or earth in a cool cellar. This may be successfully applied also to the gooseberry. Try it.

PRESERVATION OF GOOSEBERRIES.

This fruit is so nearly allied to the currant in size and qualities that it may be subjected to the same treatment.

The *Country Gentleman* recommends to take full grown gooseberries, before they are ripe, pick them, and put them into wide-mouthed bottles, cork them gently with new soft corks, and put them in an oven from which the bread has been drawn, let them remain till they have shrunk nearly a quarter; then take them out and beat the corks in tight, cut them off level with the bottle, and resin them down close. Keep them in a dry place.

TO PRESERVE STRAWBERRIES.

This fruit does not permit its peculiarly rich taste to be transmitted to the preserved berry by any means yet tried. For preserving in all the various modes, it may be treated in the same manner as cherries.

For canning, take two pounds of fine large strawberries, add two pounds of powdered sugar, and put them in a preserving kettle, over a slow fire, till the sugar is melted; then boil them precisely twenty minutes as fast as possible; have ready a number of small jars, and put the fruit in boiling hot. Cork and seal the jars immediately, and keep them through the summer in a cold, dry cellar. The jars must

be heated before the hot fruit is poured in, otherwise they will break.

To make the best strawberry preserves, take one pound of fine ripe strawberries and four pounds of good white sugar—place them in a new tin vessel over a gentle fire—stir them till they scald—set them away to cool. When cool put them in a glass jar, and exclude them from the air and you have a superior article fit for use.

To preserve strawberries or raspberries for creams or ices, without boiling, let the fruit be gathered in the middle of a warm day, in very dry weather; strip it from the stalks directly, weigh it, turn it into a bowl or deep pan, and bruise it gently; mix with an equal weight of fine dry sifted sugar, and put it immediately into small wide-necked bottles; cork these firmly without delay, and tie bladders over the tops. Keep them in a cool place, or the fruit will ferment. The mixture should be stirred softly, and only just sufficiently to blend the sugar and the fruit. The bottles must be perfectly dry, and the bladders, after having been cleaned in the usual way, and allowed to become nearly so, should be moistened with a little spirit on the side which is to be next the cork.

Strawberries stewed for tarts: Make a syrup of one pound of sugar and a teacup of water; add a little white of eggs; let it boil, and skim it until only a foam rises; then put in a quart of berries free from stems and hulls; let them boil till they look clear and the syrup is quite thick. Finish with fine puff paste.

To preserve strawberries in wine put a quantity of the finest large strawberries into a gooseberry bottle, and strew over them three large spoonfuls of fine sugar; fill up with Madeira wine or sherry.

PRESERVATION OF BLACKBERRIES.

When fully ripe or slightly overripe, the berry is apt to be broken in taking to market. They should be immediately rinsed by pouring water upon them in a collander or basket and dried in the sun. This will check the tendency to decay.

For preserving in cans, good sound berries that have not been wet nor soured should be selected. Boil gently ten or fifteen minutes, with sugar sufficient to sweeten. This berry, being small and juicy, may be put up in any ordinary mouthed bottle and sealed.

For drying mix four pounds of berries to one of sugar, boil gently a few minutes, then spread them on plates and dry around the fire or in a slow oven.

PRESERVING RASPBERRIES.

These may be preserved wet, bottled, or made jam or marmalade of, the same as strawberries. Raspberries are very good dried in the sun, or in a warm oven. They are very delicious stewed for table or tarts. See above under "Strawberries."

TO PRESERVE HUCKLEBERRIES.

This very excellent little berry is preserved chiefly by drying. It can not be long kept in a fresh condition.

PRESERVING CRANBERRIES.

For home use, spread upon a floor in a cool, but not freezing temperature, they will remain many weeks. For shipping they are put in barrels, which are afterwards filled with water. They thus make the voyage to Europe, the south, and even to the West Indies, in good condition. Cranberries may be preserved perfect for several years merely by drying them a little in the sun, and then packing them closely in clean bottles.

PROTECTING DRIED FRUITS FROM WORMS, &C.

Pack them after drying, in empty liquor barrels, and cover tight, or put them in other barrels and add a little whiskey or brandy as you fill them up.

Another method is to scatter through the dried fruit a few chips of sassafras bark. It is said that dried fruit put away with a little bark (say a large handful to a bushel,) will save for years unmolested by those troublesome little insects, which so often destroy hundreds of bushels in a season. The remedy is cheap and simple, and we venture to say a good one.

Philadelphia Preserved Pineapple.—Peel and slice the pineapple; take equal quantities of fruit and sugar; put a layer of sugar, then of apple till your jar is filled; then cover it with white brandy. Keep tight from air.

To Preserve Lemon Juice.—Lemon juice, according to Mr. Schweitzer, may be preserved from decomposition if ten per cent. of alcohol be added to it. It will be thus rendered perfectly fit for exportation or naval use.

HOW TO KEEP NUTS—WALNUTS, &C.

Take two garden pots, one a couple of sizes larger than the other; stop up the holes and fill them with clean salt and water. When the outside gets wet, you will know that the salt has got through. Then pour out all the salt and water, and open the holes. You may then fill the small pot with nuts, put it on a couple of bricks in a cellar, and whelm the large pot over it. Take care to keep the pot holes open, so that air can get through. Walnuts have been kept fresh in this way till spring. Mind that they are clean before they are put in.

Shucking Black Walnuts.—Bore a one and a quarter inch hole in a bench, place a basket under it; then put the nuts over the hole with the left hand, and drive them through it with a wooden mallet held in the right.

To Preserve Hazel Nuts and Filberts.—To preserve hazel nuts and filberts in a fresh and plump state, it is only necessary to prevent their parting with their moisture by evaporation. Burying them in heaps in the earth, putting them in earthen jars in the cellar, and covering them with dry sand are all excellent plans. The hazel nut of America is smaller than that imported, but it possesses a more pleasant taste and might be gathered in large quantities in many places. About 182,000 bushels are exported from Spain annually.

MAKING VINEGAR.

ALL reference to vinegar as a preservative, says Prof. Loomis, must be understood as being made to a pure cider vinegar. Chemical vinegars, such as are most commonly found in market, having various chemical properties, may either entirely fail to effect a preservation, or wholly consume the substance. For a good vinegar, to three gallons of pure apple cider add one gallon of soft water well sweetened with molasses, and expose to the sun or warm air till the acetic fermentation is nearly complete, then remove to a cool dry apartment. The cask should always be left uncorked.

The proportion of a gallon molasses to a barrel of cider, mixed, warmed in a kettle, and put in a cask with a few sheets of brown paper, makes a good vinegar. Keep it in a warm place with the bung open, through which a stick is inserted for stirring it, to break the scum and admit the air. The vinegar may be drawn as needed, and

its place supplied by cider, which in its turn will be converted into vinegar.

Free access of air to the cider or other juice of fruit, and a temperature of from seventy-two to one hundred degrees are requisite for vinegar making.

The best mode of making good vinegar on a small scale, says C. E. Goodrich, is : 1. Choose a stout, tight cask, if possible one that has already been used to contain cider, beer, wine, &c. Saw a square hole in the side around the bung from six to eight inches square. Be careful to saw beveling, so that the piece may at a future time be set back in the hole, and not fall in.

2. Place this cask in the warm weather of spring, in some secure and sheltered place, where it can have the sun and yet be protected from disturbance.

3. Pour into it a few quarts of good vinegar, warmed a little. Also at the same time a few quarts of good cider, which will soon become vinegar. Continue to add cider according to the heat of the weather and the ascertained progress of the contents of the barrel. In a few weeks all your barrel of cider will thus have become good vinegar. This being accomplished, the whole may be removed to a cold cellar.

4. The object of the large hole is the admission of the air freely to the surface of the liquid. It will be well, while the vinegar is forming, to lay over the hole a bit of millinet or perforated tin, to keep out insects. When it is finished, the original block sawed out may be restored.

I was taught this mode more than thirty years ago, by a wise house-keeper, and have practiced it with the best success.

In the absence of cider, weak poor wine, molasses and water, or alcohol and water may be used.

Those who manufacture vinegar on a large scale for market, sometimes have a process different from the above, which cannot well be used in a small family.

Remarks on the Sources of Vinegar.—Starch, by the saccharine fermentation, becomes sugar or sweet syrup. Sugars, and all sweet juices, become alcohol by the vinous fermentation. Alcohol becomes acetic acid, that is vinegar, by the acetous fermentation.

Hence all roots and grains containing starch, and roots and fruits containing sugar or its elements, are capable of being made into vinegar. In wine growing countries poor wines are often thus used. So poor maple or cane molasses, slops of alcohol, &c., all may be converted into good vinegar.

I hardly need add that vinegar will be strong in proportion to the richness of the materials used in making it.

Good vinegar may be kept in heart, and the vessel sustained in quantity, by the frequent additions, in small quantities, of anything that will make vinegar.

Vinegar is sometimes manufactured in the course of a day or two with great rapidity, by allowing it to trickle through small holes in the bottom of a pan, placed on the top of and fitting a barrel, which is filled with shavings. The vinegar runs down the surface of the shavings, and is thus thinly exposed to the air, which causes a rapid fermentation, completing the process, if skillfully conducted, in forty-eight hours.

D. Lee, of Washington City, states that next to cider the juice of sorghum is the best material for making pure and pleasant vinegar. He says: In converting whisky into vinegar, yeast is mixed with the diluted spirit; and I use a little yeast in making sugar cane cider into vinegar. I think it best to boil two barrels of cane juice into one for vinegar.

In place of shavings, I have hung both pine and chestnut boughs, top down, on rods in barrels, and made cane cider spread over their surface to be transformed into vinegar. The plan does well, but has no advantage over shavings.

To enterprising young farmers I would say, you can make a large profit by raising cucumbers for pickles, making vinegar from sorghum or sugar beets, and putting your pickles in market ready for the table. The hungry millions will consume an incredible amount of this article if fairly set before them. Pickled tomatoes are a very healthy fruit, and capable of large and cheap production. Vinegar as a preserver of both fruits and vegetables, has an undeveloped value of great importance.

The juice of currants, also of grapes, or the pomace of either, sweetened with molasses, will make good vinegar. So will the juice of tomatoes sweetened. And the *Scientific American* says the juice of watermelon boiled down one-half will make a vinegar equal or next to cider vinegar.

It is said that a great part of the vinegar consumed in Paris is produced by the distillation of vine stalks, and that it is much stronger than that made from wine.

Over-ripe peaches and waste fruit of any kind, put into barrels containing rain-water, and allowed to remain until the water is strongly impregnated with the juice of the fruit, will make good vinegar.

Draw off into other barrels to ferment. And so will the water in which dried apples have been soaked and washed; strain it well and add sugar or molasses.

Mix one pound of honey with a gallon of cider, and expose it to the sun, or keep it where it is warm, and in a few months it will be so strong that water will be necessary to dilute it.

A newspaper article says: By following the rules laid down in the following recipe, which I have pursued for many years, any one may make the article on his own premises: "To eight gallons of clear rain-water add three quarts of molasses. Put into a good cask, shake well a few times, then add two or three spoonfuls of good yeast cakes. If in summer, place the cask in the sun; in the winter, near the chimney, where it may be warm. In ten or fifteen days, add to the liquor a sheet of brown paper, torn in strips, dipped in molasses, and good vinegar will be produced. The paper will, in this way, form what is called the 'mother,' or 'life of the vinegar.'"

A. A. Crumpton, of Illinois, gives his experience, as follows: As I have seen from time to time inquiries for making good vinegar, I will give you the way I made a half barrel some two years ago, which we have been using out of ever since, and is now better than ever, and pronounced by all who have tasted it the best for strength and flavor they have ever tasted—in fact, we never dare use it full strength. In the spring I had left several gallons of a barrel of cider that got too sharp for drinking, to which was added nearly as much soft water, a lot of refuse molasses, the remains of a keg of beer left from the previous harvest—probably another gallon—two handfuls dried apples, a piece of brown paper dipped in molasses, to form the mother, then added a cake of dry yeast, and let it go to work, with a piece of musquito bar over the bung. Then, when fruit-canning time came, we had several kinds (raspberries and strawberries,) which, from imperfect sealing, fermented; these went into my keg; then all the apple and peach parings were saved, put down in a stone jar and covered with soft water, and allowed to thoroughly ferment; these strained and the liquor added to my keg, with a little molasses, from time to time, and by the end of summer we had excellent vinegar; and we have been using, as I said, nearly two years from that same keg, saving apple parings and fermented can fruits to keep up the supply, or sometimes adding water and molasses if it gets down much. There is a fine mother formed in the keg, which acts the same as the celebrated vinegar plant, converting everything put in to vinegar.

Preparation of Spiced Vinegar.—For every pint of spiced vinegar

it is intended to make take one ounce of black pepper, half an ounce of salt, half an ounce of ginger, a quarter of an ounce of alspice, and, if desired to be hot, add also a quarter of a drachm of Cayenne, or a few capsicums. Bruise the whole of these materials in a mortar, and put them into a jar or wide-mouthed green glass bottle, tied over with a bladder. Place this in a saucepan of water, and keep it hot for three days, shaking it now and then. If the maker has an enamel saucepan, this operation can be facilitated by simmering the ingredients together. Spiced vinegar is used hot for walnuts and cold cabbage.

Raspberry Vinegar.—Put a pound of very fine ripe raspberries in a bowl; *bruise them well*, and pour upon them a quart of the best white wine vinegar; next day strain the liquor on a pound of fresh ripe raspberries; bruise them also, and the following day do the same, *but do not squeeze the fruit, or it will make it ferment*; only drain the liquor as dry as you can from it. The last time pass it through a canvas bag, previously wet with the vinegar, to prevent waste. Put the juice into a stone jar, with a pound of sugar to every pint of juice. The sugar must be broken into lumps; stir it, and, when melted, put the jar into a pan of water; let it simmer, and skim it; when cold, bottle; it will be fine and thick when cold, like strained honey newly prepared.

MAKING PICKLES.

THE first requisite of pickling is pure vinegar. Success with the common market vinegars, made of oil of vitriol, acetic acid, or similar chemical materials, is out of the question. Having a good vinegar, almost any tasteless, tender vegetable or fruit may be used for pickling. Thus we have green or unripe grapes, apples, butternuts, tomatoes, peppers, cucumbers, melons, and, in fact, a nameless multitude of others. In all these cases the general principle is the same, i. e., if the substance possesses any bitter or acrid principle, soak or boil it in water or brine until it is removed. After this, nothing remains but to immerse it in a pure cider vinegar with condiments to suit. The ordinary mode of greening pickles by the use of copperas is highly pernicious from its irritative and poisonous effect of the copperas in the stomach.

For pickling, kettles lined with porcelain or block tin should be

used. The former is best. Iron will be likely to discolor them, while brass, copper and bell-metal will poison them, and therefore must not be used. Use cider vinegar, and glass or stone jars—not common earthenware—and a wooden spoon and fork for taking them out of the jar. Keep the jars stopped tight with large flat corks covered with oil cloth or leather, and see that the vinegar always completely covers them—the rule being one-third vinegar and two-thirds pickles to fill the jar.

To Pickle Cucumbers.—A good method is to pack in crocks, kegs, or barrels, alternate layers of fresh picked cucumbers and salt, without adding any liquid.

We have been told that if for one-half barrel of pickles we make a brine of two quarts of salt, with half a pound of alum, and keep the barrel covered, the pickle will be well preserved, and will require only to be soaked over night to be ready for the vinegar.

A plan sometimes adopted is to gather full grown but quite young cucumbers, take off the green rind, and slice them tolerably thick; put a layer in a deep dish, strew over it some chopped onion and salt; do this until they are all in; sprinkle salt on the top; let them stand six hours; put them in a colander; when all the liquor has run off, put them in a pot, strew a little Cayenne pepper over each layer, and cover them with strong cold vinegar; when the pot is full, pour on some sweet oil and tie it up close; at the end of a fortnight pour off the first vinegar and put on fresh.

Another method practiced is to choose nice young gherkins, lay them upon dishes, sprinkle salt over them, let them lie a week, drain them off, and put them into stone jars. Pour boiling white vinegar over them, place them near the fire, cover them with vine leaves, and continue doing so until they are a good color. Use wooden spoons with holes to dish all pickles, keeping them always well covered, and free from air getting to them.

To pickle ripe cucumbers, take them when they have just turned yellow, pare, slice, and take out the seeds. Scald them over night in brine, then lay them in your jar, and to a gallon of vinegar add three-fourths of a pound of brown sugar, and spice to your taste. Pour it on boiling hot, and re-scald occasionally.

To Pickle Tomatoes.—To pickle green tomatoes, slice them, scald in salt and water, with the addition of a little alum, until they begin to be tender; skim them out, and put them in a stone jar. Take enough good vinegar to cover them, and to every quart add one pound of sugar and spices. Scald them and pour over the tomatoes hot.

Another method is, to one peck of green tomatoes, allow a handful of salt and warm water sufficient to cover them. Let them remain in this twenty-four hours. Put them into a kettle (porcelain lined is the best,) fill up with vinegar and set upon the stove till the vinegar *begins* to boil, and then set it away to cool. When cold set the kettle again upon the stove, and *bring* it to the boiling point. Then skim the tomatoes and put them into a jar, fill up with some new cold vinegar, and flavor with mustard seed, alspice, cloves, &c. The same vinegar first used, will answer to scald more tomatoes in.

Another: To one gallon of tomatoes, chopped fine and pressed as dry as possible, add three red peppers and three onions, also chopped—one pint of grated horse radish, a half pint of black mustard seed, two tablespoonfuls of ground cloves, one of ground alspice, and one of black pepper. Put in a jar and cover with cold vinegar. You can leave out the onions if you choose.

To pickle ripe tomatoes, scald and peel them, sprinkle a thin layer of sugar in the bottom of a jar, then put in a layer of tomatoes, then a layer of sugar, and so on. The small ones put in whole; larger ones, slice. They will be ready in two weeks, or will keep till tomatoes come again. Or the following plan, which makes superior pickles and vinegar: To one gallon of soft water add a pint of sugar, or sorg hum molasses, stir well, and then add nearly a gallon of fresh and ripe tomatoes. Now set the vessel aside, and in a few days you will have the sourest pickles and nearly the best vinegar.

For sweet pickled tomatoes take nine pounds of ripe tomatoes, (scalded and skinned,) three pounds of brown sugar, and three pints of good vinegar; put the whole into a kettle, with the addition of two ounces of cinnamon and two of cloves, tied up in a bag—set them upon a moderate fire, stirring them frequently, to prevent them from sticking to the kettle, until they are sufficiently cooked to keep well. A very nice sweet pickle may be made of soft peaches or plums prepared in the same way.

Another: One peck of green tomatoes sliced, six large onions sliced, strew a handful of salt over them; let them remain over night, drain off in the morning, then take two quarts of water and one of vinegar, boil them in it fifteen or twenty minutes; after boiling put them in a sieve to drain, then take four quarts of vinegar, two pounds of brown sugar, half a pound white mustard seed, two tablespoonfuls of ground alspice, same of cloves, cinnamon, ginger and mustard, and one teaspoonful of cayenne pepper, put all in a kettle and cook fifteen minutes slowly.

To Pickle Onions.—Peel the onion, cut it into rings, and spread it upon a dish; then lightly sprinkle it with salt; in about half an hour pour off the watery brine, and put the onion into a jar. Now pour on scalding vinegar enough to cover the pickle made. Boil up with every pint of vinegar, before it is used, half an ounce each of whole black pepper and alspice, and a quarter of an ounce each of cloves and ginger. Keep the jar on the oven for one or two days, then tie down with a piece of glazed muslin. In a month or so it is fit for use.

Another method recommended is: Get white onions that are not too large, cut the stem close to the root with a sharp knife, put them in a pot, pour on boiling salt and water to cover them, stop the pot closely, let them stand a fortnight, changing the salt and water every three days; they must be stirred daily, or those that float will become soft; at the end of this time take off the skin and outer shell, put them in plain cold vinegar with a little tumeric; if the vinegar be not very pale, they will not be of good color.

To Pickle Cabbage—Slice, add spice, and pour cold vinegar over it.

To Pickle Radish Pods.—Immerse sprigs of young and tender radish pods two days in strong salt and water, then drain and wipe them. Boil equal quantities of vinegar and water and while hot pour over them in clean stone jars, covering closely to keep in the steam. Repeat this until they are deep green, which may require several times during the day. Then pour this off and substitute vinegar with a very little alum boiled and poured over them. Add sweet oil, tumeric, whole pepper and mace in small quantities. Close and keep tight.

To Pickle Nasturtiums.—Take the green seeds as soon as full grown, pick off the stems, and put the seeds into jars of sufficient pure cider vinegar, cold, to cover them. Stop the jars tight.

To Pickle Green Beans.—Take them while young and tender, string them, and immerse in salt water two days, stirring frequently. Put them in a kettle adding a lump of alum, and having cabbage or grape leaves over and all round them so that they shall not touch the kettle, cover tight, keep them over a slow fire until they become green. Now take them out and drain them. Put them in a jar and pour over them hot vinegar, in which spices, as whole pepper, ginger root, &c., have been boiled a few minutes tied up in a bag. Tie glazed muslin over the jar.

To Pickle Peaches.—Select those which are ripe, yet not soft enough to eat, and wipe them carefully. Put a pound of brown sugar to a gallon of vinegar, and boil it up; skim off the top, and pour it hot

upon the peaches ; add a few cloves and then cover them close. It may be necessary to scald the vinegar in a week or two, after which they will keep any length of time. No pickle can be nicer. Tomatoes prepared in the same manner and put in with the peaches, partake of their flavor so much they are scarcely inferior to them.

Some prefer the following method : Take any kind of fine, large peaches that are not too ripe, wipe off the down with a soft flannel cloth, place three or four cloves in each, and lay them whole in a jar. To every gallon of vinegar add one quart of water, five pounds of sugar, a tablespoonful of salt and whole cinnamon. Pour it over the fruit boiling hot, and let them stand in a cool place a week or ten days ; then turn off the liquor and boil as before ; after which they are ready to be set away in the store room for future use.

This has been highly recommended : Three pounds of sugar to one quart of vinegar. Spice them—pour the vinegar and sugar on cold, then set the jar in a pot of boiling water and keep them there until they boil.

A lady says the following is the best method for pickling peaches and pears :—Pare the fruit, then add one-half pound sugar to every pound of fruit. Put them in a jar—a layer of fruit and then a sprinkling of sugar, and let them stand all night. To the juice thus expressed, add vinegar enough to cover them, cook a short time and they are done. Spice as you please. I learn from a German lady (an excellent housekeeper) that a piece of horse radish root put into the jar with any kind of pickles, will prevent any scum from rising. We have only to *try* it to prove it.

Pickling Apples.—A good housekeeper recommends the following and says it is excellent : Take seven pounds of apples, pare, and steam them until you can run a fork through them easily ; then put them into a pan with three pints of vinegar, three pounds of sugar, one-half cup of spices, (equal parts cloves, cinnamon and alspice,) and cook them the same as you would preserved fruit, that is, till they are cooked through. Next put them into a jar snugly, and boil the liquid down to a good thickness, pour over the fruit, and when used for the table, serve with liquid just as you do any preserves. I prepare pears, cherries, and peaches, in the same manner.

To pickle sweet apples.—To half a peck of apples make a syrup of two pounds sugar, and one pint of vinegar. Boil the apples in this syrup until tender, then remove them, and make a new syrup of two and a half pounds of sugar and one pint of vinegar. Add one teaspoonful of cloves and one of cinnamon, tied in a bag. Let the syrup

boil fifteen or twenty minutes; then pour it, while hot, over the fruit. The first syrup is good for other sauces.

To Pickle Plums.—For seven pounds of plums, take four and a half of sugar, one quart of vinegar, four ounces cinnamon, two ounces cloves—put the spices in a bag, scald the sugar, spice and vinegar together, then pour over the plums—cover tight—let them stand on the stove and keep hot—but not boil, for four hours.

This is sometimes preferred: Seven pounds of plums, four pounds of sugar, one quart of vinegar, one ounce of cloves, one ounce of cinnamon. Boil the vinegar and sugar together, and pour them over the plums, three mornings in succession. The fourth morning put them all over the fire—simmer but not boil. Lay the spices in layers with the plums before the vinegar is poured on.

Pickled Currants.—Take eight quarts ripe currants, four pounds sugar, one pint vinegar, and ground spices to taste. Boil about one hour, put in jars and cover as other preserves. After a few months it is quite equal to cranberry jelly.

Pickling Walnuts.—A lady of great experience in such matters, gives the following: Gather the walnuts dry, prick them with a large pin two or three times, put them into salt and water, shift them every three days for a fortnight, put them into a sieve, and let them stand a day in the air, and then put them into an earthen jar. Boil as much vinegar as will cover them well, pour it boiling hot over them, let them stand three days, then put them into a sieve, and let them stand in the air another day; then take to every quart of fresh vinegar that may be wanted, half an ounce of black mustard seed, half an ounce of horse radish cut into slices, a quarter of an ounce of long pepper, three cloves of garlic, a dozen cloves, four or five pieces of raw ginger, and a few eschalots; boil these ten minutes, and pour it boiling hot over your walnuts; let it stand a fortnight, then put them into bottles corked close, and cover the corks with resin. They will keep for years.

Pickles Recommended by the Sanitary Commission.—H. M. Way, Agent of the U. S. Sanitary Commission, writes from Memphis, Tenn.: Secure green tomatoes, melons, cucumbers, cabbage and onions, slicing all of these, then cover them with strong brine for thirty-six hours, then pour off the brine and pack very closely in tight barrels, sprinkling in a plenty of mustard, horse radish or other spices as you have convenient, head and hoop securely, and you have the best of mixed pickles.

In this way you can make excellent pickles of many things that are

considered useless at home, and they can be put up even after the frost kills the vines. Pickled potatoes have proved to be an excellent anti-scorbutic, but being so unpalatable and indigestible have been used but little and only in extreme cases, and in the absence of other vegetables.

Another says: We recommend to all housewives this excellent receipt for preparing pickles: Take ripe or half ripe cucumbers, melons, cabbage, onions, tomatoes and green peppers; chop, and add one tea cup of salt for every two gallons of the mixture. Let it stand and drain for twenty-four hours. A flour barrel with holes bored in the bottom we find most convenient for this purpose.

To twelve gallons add one-half pound black mustard seed and one pint horse radish, chopped fine. Spices of all kinds are a great improvement. Cover with cold vinegar.

Piccalilli.—Piccalilli is a mixture of all kinds of pickles. Select pickles from the salt brine of a uniform size and of various colors, as small cucumbers, button onions, small bunches of cauliflowers, carrots to cut in fanciful shapes, radishes, radish pods, bean pods, Cayenne pods, mace, ginger, olives, limes, grapes, strips of horse radish, &c.

Arrange your selection tastefully in glass jars, and pour over them a liquor prepared in the following manner: To one gallon of white wine vinegar add eight tablespoonfuls of salt, eight of mustard-flour, four of ground ginger, two of pepper, two of alspice, two of turmeric, and boil all together one minute; the mustard and turmeric must be mixed together by vinegar before they are put into the liquor. When the liquor has boiled, pour it into a pan, cover it closely, and when it has become cold, pour it into the jars containing the pickles; cover the jars with cork and bladder, and let them stand six months, when they will contain good pickles.

Piccalilli is an excellent accompaniment to many highly seasoned dishes. If well put up, it will keep for years. If you like oil in the piccalilli, it should be braided with the vinegar, and added with them to the boiling liquor.

To Detect the Copper in Greened Pickles.—A beautiful and simple experiment within the reach of everybody: Cut a greened pickle into small pieces, and put them in a glass of rainwater, adding ten or fourteen drops of sulphuric acid; put the bright blade of a knife, or any bright steel surface, in the liquid for twenty-four hours, and if the pickle contains copper it will be found upon the steel blade, as though it had been coated by the galvanic process. All pickles greened in brass or copper kettles show this result. The green color comes from

verdigris, which is a deadly poison. The quantity usually taken with pickles does not often kill, but it produces disease. A poisonous pickle may be eaten upon a full stomach, it should never be upon an empty one.

CATSUPS.

To Make Tomato Catsup.—Select well ripened and smooth tomatoes; boil with a very little water until tender; remove the skin, and rub the contents through a fine sieve to separate the seeds. To each bushel of the fruit add two quarts cider vinegar, two pounds salt, one-fourth pound black and two ounces Cayenne pepper, three grated nutmegs, one-fourth pound alspice, six finely chopped onions, and three pounds brown sugar. Boil the whole for one hour, stirring frequently and thoroughly, and strain through the wire sieve. When cold, bottle and set away in a cool place. It is ready for immediate use, or it may be kept a year.

Another method is to take a peck of tomatoes, pick out the stems and wash them. Put them on the fire without water, sprinkle on a few spoonfuls of salt; let them boil steadily an hour, stirring them frequently; strain them through a colander, and then through a sieve; put the liquid on the fire with half a pint of chopped onions, half a quarter of an ounce of mace, broke into small pieces, and if not sufficiently salt, add a little more; one tablespoonful of whole black pepper; boil all together until just enough to fill two bottles; cork it tight. Make it in August, in dry weather.

Orange Judd, editor of the *Agriculturist*, directs as follows: Select perfectly ripe, sound fruit, cut in slices, and boil until the pulp is cooked soft. Rub it through a sieve to take out the skins and seeds, and replace it in the kettle for cooking. To each gallon of pulp add three tablespoonfuls each of salt, ground pepper and mustard, and one of ground alspice. Enclose four large sweet peppers and two or three garlies, or one large onion, in a small bag, and boil in the catsup. The garlic or onion may be omitted if the flavor is not relished. Cook it until of the right consistence. It should be just thick enough to run slowly from a bottle. When cool, pour it into bottles, cover them with a bit of cotton cloth, tied on the neck, and leave it three months to ripen; then cook and seal.

The *Country Gentleman* recommends that the tomato should be

squeezed up in the hand, salt added, and then allowed to stand twenty-four hours. After passing through a sieve, add cloves, alspice, pepper, mace, and whole mustard seed. Then boil it to one-third, bottle, and cool it. A considerable portion of salt and spice is needed to keep the tomato well.

The Columbus (Ga.) *Sun* gives the following, as the best receipt for making tomato catsup: To a half bushel of skinned tomatoes add one quart of good vinegar, one pound of salt, quarter of a pound of black pepper, two ounces of Cayenne, quarter of a pound alspice, one ounce of cloves, three boxes of mustard, twenty cloves of garlic, six good onions, two pounds of brown sugar, and one handful of peach leaves. Boil this mass for three hours, constantly stirring it to keep it from burning. When cool, strain it through a fine sieve or coarse cloth, and bottle it for future use. It will improve by age, and create and give zest to appetite.

There is an adulterated or spurious article sold in the market under the name of tomato catsup, or tomato catchup. Old, otherwise worthless and musty dried apples, are bought up, ground fine, boiled, flavored and spiced, bottled, labeled and sold. A manufacturer's agent boasted of having twelve tons of such dried apples on hand to be used in this way.

To Make Cucumber Catsup.—A good method, given by the editor of the *Am. Agriculturist*, is to select large cucumbers just before they turn yellow, peel and grate them; let the juice drain out through a colander or sieve, then rub the pulp through a sieve to remove the seeds. Half fill bottles with the pulp, and then fill up with moderately strong vinegar. Keep it corked tightly. Add salt and pepper when used at the table.

Another way is to take ten or twelve fully grown yellow cucumbers; having pared off the rind and scooped out the seeds, wipe the melon dry, cut it into narrow strips, a fourth of an inch in width, and chop up each strip into tiny blocks; to these add six large onions and six green peppers, also chopped into little bits. Mix all together, adding a handful of salt. Put them into a jelly bag and drain for a few hours, until no more juice drops from it. When dry, add to them two ounces each of black and white mustard seeds, put into a stone jar, cover with cold, strong vinegar, and in two weeks the housewife will be repaid for her trouble by some of the most appetizing sauce that ever graced her table.

To Make Plum Catsup.—Boil together for two hours nine pounds of plums, six pounds of sugar, and three pints of vinegar. Just before

removing from the fire, add one tablespoonful of alspice, cloves and cinnamon. Keep in small jars, well corked. The same directions will answer for currants or gooseberries.

To Make Grape Catsup.—From the *Am. Agriculturist*: Place grapes in a kettle surrounded with boiling water. To each quart allow a teaspoonful of broken cinnamon, one of mace, and a half teaspoonful of cloves. Let it simmer over water one hour. Strain the juice and pulp; add to each quart a pound of sugar, and then boil again until reduced to near a jelly. Thin to proper consistence with vinegar, bottle, cork and seal.

To Make Elderberry Catsup.—On every pint of ripe elderberries, stripped from the stalks, pour a pint of boiling vinegar, and let it stand in a cool oven all night. Strain without pressing, and boil the liquor five minutes with half a teaspoonful of salt. To every quart put half a pound of anchovies, half an ounce of mace, half an ounce of whole pepper, half an ounce of ginger, twelve cloves, and four eschalots. Bottle when cold with the spices.

Prepared Mustard.—Said to be superior to the common way: Powdered astragon, half an ounce; mustard, one pound; sugar, one ounce; salt, one ounce; black pepper, one-fourth of an ounce; Cayenne pepper, one-fourth of an ounce; olive oil, four ounces; tincture of alspice, half an ounce; tincture of garlic, one-fourth of an ounce; vinegar, a sufficient quantity to make it of a proper consistence. Bottle, and let it stand for a few days before using.

Horse Radish.—Scraped or grated fine, and tightly sealed in bottles with good cider vinegar, it will last a long time.

A Substitute for Horse Radish.—Sam Slick says: "Take a turnip, scrape or grate it the same as the radish; mix it with fresh mustard and a little pepper and vinegar, and you can't tell it from t'other." If you can't get horse radish, try it.

MILK, BUTTER AND CHEESE.

MILK.

Scalding Milk Vessels.—Be careful to scald every vessel which has contained milk, having previously let it stand for some time filled with cold water, and never let any other liquid be put into it till it has undergone this process, or whatever you put in will be spoiled.

Glass Pans for Milk.—An English farmer says, when he first took to dairying on a large scale, he laid out one hundred dollars in glass pans, because they looked so well in a dairy. On further acquaintance with them he has come to the conclusion that they are the cheapest thing (even at one dollar each,) that a farmer can use—they are washed and wiped and kept clean with so little trouble.

Milk Pan Covers—To Keep out Dust and Insects.—Make hoops of rattan, or willow, a little larger than the tops of the pans, and stretch over them very thin muslin, thin enough to admit some air, but not flies and mites.

To Keep Milk.—1. All know that if we can prevent the cream from rising, the milk will be more palatable and healthy, with the particles of cream mixed through it, than skim milk, or than milk fresh from the cow, with the fresh taste and odor. To prepare milk in this way, take it while warm from the cow, set it in a cool place, and stir it continually until all the animal heat is out, and no cream will rise after that operation. Try it, and see how much it will be improved for family use.

2. Milk is kept longer, if it is boiled, evaporated, condensed, or kept still at a temperature of about forty degrees. If heated three days in succession in summer, and two in winter (as per Guy Lussac's experiments,) up to the boiling point, it will keep two months without souring.

3. The best way of keeping milk in summer, is to have a spring house well shaded, and on the north side of a hill, the pans sitting in a stream of running water, protected against currents of air.

4. Provide bottles, which must be perfectly clean, sweet and dry; draw the milk from the cow into the bottles, and, as they are filled, immediately cork them well up, and fasten the corks with pack thread or wire. Then spread a little straw in the bottom of a boiler, on which place bottles with straw between them, until the boiler contains a sufficient quantity. Fill it up with cold water; heat the water, and as soon as it begins to boil, draw the fire, and let the whole gradually cool. When quite cold, take out the bottles, and pack them in saw dust, in hampers, and stow them in the coolest part of the house. Milk preserved in this manner, and allowed to remain even eighteen months in the bottle, will be found as sweet as when first milked from the cows.

Preserving Buttermilk.—Take a vessel that will contain nearly twice as much as you wish to save. While milk is plenty, fill it two-thirds full of buttermilk, and then fill up with water. Drain off the

water and refill with fresh once a week, stirring it well each time after filling, and you will have a good article always ready.

Solidified Milk.—There is a process by which milk may be solidified and preserved for months, perhaps years: The milkers, as they empty their pails, strain the milk into a large tub into which is already placed the requisite amount of the very best kind of sugar. This is readily dissolved by the milk, which, as soon as the milking is done, is introduced into large shallow pans. Underneath these pans steam is introduced, and the watery part of the milk is, by means of the heat generated by this steam, aided by an artificial current of air made to pass along its surface, rapidly evaporated. In this way is produced, at the end of three or four hours, a powder of nearly a cream color, which, when perfectly dry, is packed into cans for sale or future use. It will be readily seen that this article cannot fail of being of great utility and value, as, for all purposes where milk and sugar are both used, it fully equals the manufactured article, and as it will keep in good condition for a great length of time, it may be used when it would be impossible to obtain milk in any other form.

Powder of Milk.—The powder of milk added to water, forms an agreeable drink, and an excellent substitute for milk:—Milk, two pints, water one ounce; sugar, one pound. This mixture then is to be gently heated and constantly stirred. When it is three-fourths evaporated, the sugar is to be gradually added and the whole briskly stirred. After it is perfectly incorporated, the mixture is to be removed from the fire, poured into plates, and dried in an oven. When perfectly dry it is to be finely powdered and kept in well stopped bottles. One or two teaspoonfuls is sufficient for a cup of tea or coffee.

Concentrated Milk.—Genuine cow's milk contains, in a thousand parts, one hundred and sixty of butter, casein, and sugar of milk; the remaining eight hundred and forty parts are water. By evaporating the water, (which is accomplished by heat and withdrawing the air,) the residue (only one-sixth of the original bulk of the whole) is a paste that may be put up in cans, sealed and carried any distance, kept sweet any length of time, and reconverted into pure unadulterated milk at any moment, by adding the necessary quantity of water.

Management of Cream in Cold Weather.—For some reason not yet known, cream skimmed from milk in cold weather, does not come to butter, when churned, so quickly as that from the same cow in warm weather. Perhaps the pellicles, which forms the little sacs of butter in the cream, are thicker and tougher. There are two methods of obviating this trouble in a great degree. One is, to set the pan of

milk on the stove, or in some warm place, as soon as strained, and let it remain until quite warm—some say, until a bubble or two rises, or until a skim of cream begins to form on the surface. Another mode recommended is to add a tablespoonful of salt to a quart of cream when it is skimmed. Cream thus prepared, will generally come to butter in a few minutes when churned. It is thought the salt acts upon the coating of the butter globules and makes them tender, so that they break readily when beaten by churning. So says the *Maine Farmer*.

Proper Temperature for a Dairy.—The temperature of about fifty-five degrees is most favorable for the separation of the cream from the milk. The apartments should be kept perfectly clean and dry.

Yield of Cream and Milk.—The *Agricultural Gazette* says: Cream is generally ten per cent. of milk, and an average yearly yield of milk is five hundred and fifty to six hundred gallons per cow.

The Quantity of Milk for a Pound of Butter or Cheese.—The quantity of milk for a pound of butter has been found to average fourteen quarts in this country and in various countries in Europe. Same average in Mecklinburg, Prussia, Holland and Great Britain. The *American Agriculturist* says, one pound of butter requires on an average about fifteen quarts of milk. An average of ten and fourteen-hundredth pounds of milk is required to yield a pound of cheese. This gives from the same quantity of milk about three pounds of cheese to one of butter.

In a series of seventy-four trials in the butter dairies of Worcester county, it was found that it took twenty-one pounds of milk to make one pound of butter, the trials being made, an equal number in June and September. The cheese factories last year found that it took a trifle over eleven pounds of milk to make one pound of cheese in June, and only about eight pounds on an average, in September and October. So that within a fraction, taking the season through, two pounds of cheese will cost about the same as one pound of butter.

Milk Without Butter—A Remedy.—Cow's milk, otherwise of good quality, sometimes lacks that of making butter. Give the animal two ounces of the sulphuret of antimony, with three ounces of coriander seed, powdered and well mixed. Give it as a soft bolus, followed by a draught composed of half a pint of vinegar, a pint of water, and a handful of common salt, for three successive mornings, on an empty stomach.

BUTTER.

Butter Making.—The amount of the butter crop of the United States is estimated at sixty-five million dollars. Scarcely one turkin in four opens perfectly sweet. This arises not from any real chemical or practical difficulty; but solely from want of knowledge or want of care in its manufacture.

The secret of making good butter, and a good deal of it, is, first good cows—second, good winter care and keeping—and third, regular and thorough milking and proper management of milk and cream when obtained.

There is no product of the farm that presents so much difference as butter. It is caused chiefly by using vessels for holding milk, and utensils in making the butter, which are soured. Milk has a peculiar acid, very easily formed; which entirely takes away that rich, sweet flavor belonging to good butter. A very little soured milk or cream on vessels rapidly generates enough acid to take it away. To avoid this, great care is requisite. Cleanliness only is not sufficient, in having the vessels well washed, but they must be carefully washed in boiling hot water, and should be boiled in it also. But as cream is very apt to stick, even in good washings, when the vessels are boiled in water some pearlash or soda should be put in it, which destroys any acidity that may be about the vessels.

The temperature of the cream is very important in churning. If it is below fifty degrees, the cream may be churned for days without separating the butter, and if much above sixty degrees, a portion of the cream will be mixed with the butter, giving it a white appearance and cheesy flavor.

A writer in *Cosmos* says that the time required for the formation of butter varies much with the temperature; that near 54° Fahrenheit, it requires ten times longer than at 68°, but when the temperature is too high the yield of butter is much diminished; that the best temperature for getting butter from milk is between 60 and 80°. The losses are much less when cream is churned instead of milk. The best temperature for getting the most butter from cream, and in the least time too, is between 57 and 61°.

Milk absorbs the odor of turnips and other roots kept with it in the same cellar; it should be kept by itself in a cellar of the most immaculate cleanness, and of uniform temperature.

Stir cream previously taken off with that skimmed each time. That taken off just previous to churning retain until next churning.

Inducements to Improve the Quality of Butter.—We take the following from the editorial columns of the New York *Tribune*:

It has often been asserted that much of the butter brought to this market was of inferior quality, and hence its low price. Some of the butter-makers in the country have thought us disposed to cry down the quality to cheapen the price. It is not so. We would gladly say all the butter offered for sale is of superior quality. We cannot say so because it is not so. Listen to a little actual conversation with a butter commission merchant, as it came off this 30th day of January, when we stepped into the store of Miller & Carpenter, where we saw some hundred or more kegs of butter, and said:

"Mr. Miller, I want a keg of good table butter. What is it worth?"

"Such as you would have, thirty cents, but I haven't a keg that will suit you."

"No? not among all this? How is that?"

"I can't tell you how, but it is so. I do have a good deal of good butter, but it is snatched up almost as fast as it arrives; and I have now a standing order for all that may come in, strictly prime, at twenty-eight cents a pound, while the most of this I will sell at sixteen cents."

"That is a very great difference—fourteen cents a pound just upon the difference in quality of butter.

"It is so, but it is the truth."

Another commission merchant, hearing the conversation, said:

"I have about one hundred packages of the average quality of all but prime butter in this city, which I will sell at fifteen cents to any one who will take the lot off my hands; and I know a merchant who is offered twenty-six cents a pound for a large dairy which he has on hand holding for twenty-seven cents."

"Is this an unusual season for poor butter?"

"Well, yes, perhaps it is; but the proportion of good butter in market is always very small of the vast amount sent here."

Now, that is the fact—not one good keg of butter in a hundred, and a difference of fourteen cents a pound between good and poor. What an immense sum—will the farmers think what a loss, and who it is that the loss falls upon?

Requisites for Making Good Butter.—The following rules are practiced by all those who make the very finest article. Their butter is always eagerly taken at several cents above the market price—invariably so after they have established the reputation:

1. A perfectly clean cellar, not only clean from all dirt, but from every bad odor, pure, sweet and fresh.

2. Perfectly clean, well-aired vessels. Not an infinitesimal speck of any foreign or sour substance adheres to any of them.

3. Churning before the cream becomes old.

4. Securing such a temperature that it will require about half an hour for churning—if performed much sooner, a loss of butter must occur, and it is not so good.

5. Work all the buttermilk out, which is rarely done, and work no longer, which is still more rarely but sometimes done.

6. Use the purest salt, and add an ounce to a pound.

7. Pack the butter in the jars or firkins *solid*—put as much in a small space as possible.

8. Lastly, and first, also, provide good sweet pasture and plenty of perfectly pure water for the cows at all times.

Some assert that their vessels are clean, &c., when, in fact, they are far from it.

The following is an extract from the report of the Committee on Butter of the Franklin Co. (Mass.) Agricultural Society, made at their last winter meeting :

To make the best of butter requires many pre-requisites ; but for all practical purposes two main points cover the whole, viz : 1st, neatness, 2d, skill. If any dairywoman expects to make good butter without the most scrupulous neatness, she will find herself greatly disappointed. From the moment when the rich and luscious fluid is first drawn from the cow's udder, to the time when the butter is ready for the table of the connoisseur, the least dirt, the least must or unpleasant flavor in the atmosphere of the room, and the least speck of foreign matter of any kind must be absolutely and perfectly kept from it during all its stages of manufacture. In fact, neatness is the *sine qua non* of the butter-maker's art. As well may we suppose that any of the laws that regulate the physical world will be reversed, as to suppose that good butter can be made without the most *scrupulous neatness in every particular*.

The second indispensable qualification of the perfect butter-maker is skill—a word of quite extensive signification when applied to this subject. To acquire that skill requires a clear and discriminating judgment, a well educated and experienced mind, and a minute and accurate observance of the physical laws which regulate the various conditions of the milk and cream while undergoing the transformation into butter. To be a successful butter-maker, therefore, requires no

inconsiderable degree of education, intellect, and ingenuity. Let us then analyze this skill of butter manufacture, and see what are its most important elements.

To begin, then, we must have good milk, we must have good cows, and to have good cows requires a selection of the best breeds, and of the best milkers from the best breeds for that purpose. But that carries us into another department of agriculture which we have no time here to discuss.

Assuming, then, that we have good milk, the next thing is to place it in shallow pans, (tin is usually preferred,) and in a degree of temperature neither very warm nor very cold. About sixty-two degrees of Fahrenheit is supposed to be the state of the air in which cream will rise most perfectly. And here let us remark that every housewife who aims to make the best of butter, should be a frequent observer of its condition.

If milk is kept in a temperature much below sixty-two degrees, the cream will not rise so rapidly and so perfectly. If kept in a state of air much above sixty-two degrees, the milk will become acidulated too quickly, and the quality of the cream will be thus injured. Equalization of temperature and a free circulation of pure air are among important elements of the butter-maker's skill. The time requisite for cream to rise naturally and perfectly varies with the temperature from twenty-four to forty hours. As soon as the cream has all risen to the surface, it should be separated from the milk, and with much care, for the less milk that is taken up with the cream the better will be the butter.

Churning is the next operation, and it is one that determines in no small degree the quality of the butter. If cream is put into the churn in a state much colder than sixty-two degrees of the thermometer, it will require much more time and labor to convert it into butter, and the butter will never be of good quality. Let the cream then be brought to an even temperature of sixty-two degrees, and the often laborious operation of churning, especially in winter, will become comparatively easy. If the cream is much warmer than sixty-two degrees, the butter will be too soft, too white, and in most particulars quite poor.

As soon as there is a perfect separation of the particles of the cream which make the butter from the more watery parts of the milk, let the butter be taken from the churn, and then comes the quite difficult and delicate operation of working over and salting it, both of which require accuracy and judgment. For if the milk is left and mixed in

with the butter, one thing is sure—the butter will never have that compact and smooth appearance that is one of the sure indications of good butter; and, what is more important, butter left in that condition will not keep long without becoming musty or frowy. Every one that aims at making the best of butter, must separate entirely the particles of the milk from the butter, immediately after churning. Washing the butter with cold water is practiced by some, but the most skillful butter-makers complete the separation of the solid from the fluid portions by manipular labor alone.

The form in which butter is prepared for the table or for market is one indication of the skill of the maker. Butter put up in small cakes or oval form, and stamped with the device of flowers, leaves, or diamond figures, is the most beautiful, and seemingly adds to the good flavor of the article. In order to sell for the highest price, it should always be put up in that form, or in oblong pieces, of about a pound each.

Such are the main requisites of the skillful manufacture of good butter, without which we venture to assert with great confidence, that the best of butter cannot be made.

Does any good housewife, when she has read this report, say, “I knew all that before?” If she does, then we ask her, with no small degree of assurance, Madam, do you *practice* all these rules for making good butter? If you do, why is it that so large a proportion of the butter that is sent to our markets is so very poor?

Prize Butter Making.—Hiram Mills, of Lewis Co., has frequently taken butter prizes at the New York State Fairs, and gives the following as his method:

Milk set in tin pans on rack or slat shelves, (temperature of room, seventy degrees,) and allowed to stand until it is sour, and sometimes until it thickens, but never should be allowed to stand until it turns spotted, as that injures the flavor of the butter. Cream taken from the milk and kept in tin cream pail until enough is obtained for a churning. Use crank churn, propelled by hand. Churn from forty to fifty pounds at a time. After the butter has come, draw off the buttermilk, and wash with cold water in the churn, unless the butter comes very hard, when the washing is omitted. Butter taken from the churn and worked thoroughly by hand until it is freed from the milk; then apply one ounce Ashton salt to one pound of butter, which should be well worked in to prevent the butter from being streaked; it is then allowed to stand for twenty-four hours, after which it is worked with a butter worker, being careful not to injure the grain. No other

substance is used to preserve the butter. Have generally used this kind of salt in making butter ; usually pack in eighty pound tubs, and as soon as one is filled cover with a thin cloth, and then a quantity of salt to exclude the air. TubS are prepared by soaking in brine.

Philadelphia Butter.—Dr. Elwyn, of Philadelphia, furnishes the following statement in regard to butter making—the superior butter found in the Philadelphia market :

After the milk is drawn from the cows it should be strained into pans properly arranged on a bench for the purpose, with a small quantity of fresh sour milk in each one, to hasten the raising of the cream, which should on all occasions be taken off from thirty to thirty-six hours after being milked, it being found that, standing longer in a large dairy, more is lost by deteriorating the quality of the butter than is gained in quantity. When the cream is skimmed off of the milk into a large cream pot, it should be put in the butter hole in the spring and let stand one day, then shired off, so as to remove any sour milk that may have settled from it to the bottom of the pot, and should be subsequently stirred every day until churned, to prevent rancidity from taking place on the top of the cream by too long standing, which is the main cause of all the strong butter that is made. The cream should be churned twice in the week during the summer months, and all the year where there is a sufficient quantity to warrant it. The temperature of the cream and churn should be about sixty-two degrees so as to warrant the butter to come right, and in the proper length of time, which should be about thirty minutes. There is as much danger of having the butter come soft by over-churning as by the atmosphere being too hot.

In order to regulate the temperature of the cream in the fall, winter and spring, it should be set in a tub of hot water until it comes to the temperature above designated—the butter broken in the churn to the size of peas and chestnuts. The buttermilk should be drawn off through a fine hair sieve from the vent of the churn, which should be about an inch hole. A sufficient quantity of spring water should then be put in, and a few revolutions of the churn, when it should be drawn off, and then another quantity of spring water put in and tumbled in the churn until gathered into a mass. The water should all then be drawn off, and the butter cut into cracks as it lays in the churn to receive the salt, which should be a pint for fifty pounds, regulating below that, or above that, according to the quantity churned. The butter should then be tumbled in the churn until the salt is mixed

with it, and it will then do to take out in ten or fifteen pounds, and lump into pounds, ready for sponging, which should be done by having a sponge of proper size enclosed in a linen cloth and passed over the lump, by pressure, to absorb the brine and moisture it contains, which should then be weighed and printed if intended for the market.

The butter maker will see the advantage of this mode of salting and working over any other mode, and particularly of the lever or worker, as it is called, from the fact that less of it is exposed to a warm atmosphere at a time, as it must necessarily be where fifty or one hundred pounds are operated upon on a broad surface, making the butter soft and oily, which is detrimental to its quality, however carefully attended to, from the time the milk is taken from the cows. The above plan was perfected by experiment by me, and carried out for a succession of years, as thou knowest, with a success as to a quality and sale of my butter not surpassed by any one at the time I was operating.

How Goshen Butter is Made.—Goshen (Orange Co., N. Y.) butter is celebrated all over the country. We annex an account of the process of manufacture from a reliable source: The cellar where the milk is kept, should be cool, well ventillated, and clean. The milk ought to be strained into pans containing ten or twelve quarts. If the weather is very warm, the pans ought to be set on the cellar bottom—otherwise on shelves. The milk ought not to be churned until it becomes thick or loppered—the milk and cream are then churned together. Some dairymen skim off the cream and part of the milk and churn that, but the Goshen butter is churned from the *milk and cream*. The churn used is the common “dasher churn,” driven by dog, horse, or hand power, according to the size of the dairy. The churn may be half or two-thirds full with milk, and a pailful of cold water added before starting to churn. In cold weather, warm water is put in. The churning should be with a slow regular motion—and to make good solid butter will take from one hour to one hour and a half; before the churning is done, another pailful of water ought to be put in. When the butter is done, take it out, wash it through one water in a large tray; then salt the butter, using about one ounce of pure Liverpool (Ashton) salt to each pound of butter. Work the salt through the butter—put it in a cool place and let it stand an hour; then work it carefully over, and set it aside for five or six hours; work it over again, and set it aside in the same cool place until the next morning, when it is packed. In working butter, great care ought to be taken to *work out all the milk*, but not to work it too much, so as to break the

grain and make it salvey. If any milk is left in, the butter will soon become rancid; and if worked too much, will be greasy or salvey, and not solid. Butter worked just enough, will be *solid—sweet—yellow—* and the drops of brine on it will be *as clear as crystal*.

Orange county butter is packed in white oak firkins—the staves selected so as not to leak the brine; the firkins will weigh about eighteen or twenty pounds empty. The firkins are soaked in pure cold water for some days before using, by being filled with water—they hold from eighty to one hundred pounds of butter. When the firkin is full, a linen cloth is placed over the top of the butter, and on this cloth a layer of salt an inch in depth is laid, made a little damp with cold water. The butter stands until marketed; then the salt and cloth are taken off, a fresh cloth wet with brine put on, and the firkin headed up. Great care should be taken to have the firkins kept perfectly clean. The outside ought to be as bright as when turned out by the cooper. No leaky firkin, or any that will filter the least particle of brine ought to be used. This is the way Goshen butter is made.

To Make Butter in Winter.—You cannot get butter out of milk if there is none in it. Feed the cows well and thus secure good milk, and there is not much trouble in churning even in Winter. Keep the cream in a warm room until it turns somewhat sour. Let the churn be scalded before pouring in the cream, so that it will be heated through and not cool the cream. Let the cream be at a temperature of sixty-five degrees to seventy-six degrees, and there will not be much difficulty in making the butter come.

How to Make Yellow Butter in Winter.—A cow must have a good supply of hay, that has been made of good grass, cut before the blossom has fallen, and cured properly without having been wet while it was cured. A few orange carrots daily—not reduced to a fine pulp and mixed with the butter—but fed to the cow in connection with a few pounds of Indian meal, made of yellow corn. A good supply of good corn stalks—not those that have been frost bitten and weather beaten. A good cow with yellow skin about the udder is very essential. A cow in good condition. A good stable well littered, and an abundance of clean water for the cow to drink. Never allow the milk to freeze. With these essentials it is possible to have good yellow butter in winter.

To Color Butter Yellow.—Put in yelk of eggs just before the butter comes, near the termination of the churning. This has been kept by many as a great secret. The substances mostly employed in England and Scotland are the root of the carrot and the flowers of the mari-

gold. The juice of either of these is expressed and passed through a linen cloth. A small quantity of it is diluted with a little cream, and this mixture is added to the rest of the cream when it enters the churn. So little is necessary that it communicates no peculiar taste.

To Make Butter in Five Minutes Without a Churn.—A correspondent highly recommends the following: After straining the milk, set it away for about twelve hours for the cream to rise. (Milk dishes ought to have strong handles to lift them by.) After standing as above, set the milk, without disturbing it, on a stove; let it stand there until you observe the coating of cream on the surface assume a wrinkled appearance, but be careful it does not boil, as, should this be the case, the cream will mix with the milk and cannot be again collected. Now set it away till quite cool, and then skim off the cream, mixed with as little milk as possible. When sufficient cream is collected, proceed to make it into butter as follows: Take a wooden bowl, or any suitable vessel, and having first scalded and then rinsed it with cold water, place the cream in it. Now let the operator hold his hand in water as hot as it can be borne for a few seconds, then plunge it into cold water for about a minute, and at once commence to agitate the cream by a gentle circular motion. In five minutes or less the butter will have come, when, of course, it must be washed and salted according to taste, and our correspondent guarantees that no better butter can be made by the best churn ever invented.

To those who keep only one cow, this method of making butter will be found really valuable: while quite as large a quantity of butter is obtained as by the common mode, the skim milk is much sweeter and palatable. In the summer season it will usually be found necessary to bring the cream out of the cellar—say a quarter of an hour before churning—to take the excessive chill off; in winter place the vessel containing the cream over another containing water to warm it; then continue to agitate the cream until the chill has departed.

Before washing the butter, separate all the milk you possibly can, as the butter will be found excellent for tea cake. Butter made in this manner will be much firmer and less oily in hot weather, than when made in the ordinary way.

To Preserve Butter.—Take two parts of the best common salt, says the *Scientific American*, one part of sugar and one part of saltpeter, and blend the whole completely. Take one ounce of this composition for sixteen ounces of butter, work it well into a mass and close it up for use. Butter thus cured requires to stand three weeks or a month before it is used. Dr. Ailen says: Treat each pound with one ounce

of the following composition : salt two parts, saltpeter one part, sugar two parts.

D. E. Smith contributes to the *Am. Agriculturist* the following directions for preserving butter in good condition for any length of time :—In May or June when butter is plenty, work it thoroughly two or three times, and add at the last working nearly one grain of saltpeter and a tablespoonful of pulverized loaf sugar to each pound of butter. Pack it tightly in stone jars to within two inches of the top, and fill the remaining space with strong brine. Cover the jars tightly, and bury in the cellar bottom, where the butter will keep unhurt for a long time.

Dr. Hall in his *Journal of Health* directs thus : When first churned, wash it well in three waters ; work it well again before packing ; put it in large stone jars ; dig a hole under any floor or in a cellar ; leaving the top of the jar just above the ground ; cover the butter two or three inches deep with strong brine, adding more butter until the jar is nearly full.

Preserving Butter while Using from Firkins.—A writer in the *New York Observer* furnishes and commends the following mode, given in Mrs. Cornelius' "Young Housekeeper's Friend." After taking out butter enough to last a week or more, lay a piece of white linen over the firkin, covering it closely around the edges, and then pour on a solution made of two quarts of water, one quart of fine salt, one pound of sugar, and a teaspoonful of saltpeter. Head up the firkin, and if it leaks set it in a wash tub and put in some more, driving down the hoops ; every time butter is taken out, close the firkin in this way. If the salt does not all dissolve in the brine, add a little more water. One recipe will do for one hundred pounds of butter. The above correspondent adds—"With this recipe I have kept butter into July, in Brooklyn."

On showing this method to an experienced and skillful housekeeper, she said it was precisely the same that she had been familiar with for more than thirty years as an excellent receipt. Since the high price of sugar, however, she had used only the salt and water, and found it to answer nearly as well.

To Preserve Butter Without Salt.—It is said that butter may be preserved without salt by incorporating it with honey, in proportion of an ounce to a pound of butter. This has an agreeable taste, will keep for years, and might be useful on long voyages, but, though the proportion of honey is inconsiderable, it may not agree with some constitutions.

To Preserve Butter for Cooking.—Butter for cooking may be preserved a long time by melting it and pouring it into an earthen pot.

The cause of the tainting of fresh butter depends upon the presence of a small quantity of curd and water. To render butter capable of being kept any length of time in a fresh condition, that is, as a pure salad oil, all that is necessary is to boil it in a pan till the water is removed, which is marked by the cessation of violent ebullition. By allowing the liquid oil to stand for a little, the curd subsides, and the oil may then be poured off, or it may be strained through calico or muslin into a bottle, and corked up. When it is to be used, it may be gently heated and poured out of the bottle, or cut out by means of a knife or cheese gouge. This is the usual method of preserving butter in India (ghee,) and also on the Continent; and it is rather remarkable that it is not in general use in this country. Bottled butter will thus keep for any length of time, and is the best form of this substance to be used for sauces.

To Keep Butter Hard and Cool.—Procure a large, new flower pot of sufficient size to cover the butter plate, and also a saucer large enough for the flower pot to rest in upside down; place a trivet or meat stand (such as is sent to the oven when a joint is baked) in the saucer, and put on this trivet the plate of butter; now fill the saucer with water, and turn the flower pot over the butter, so that its edge will be below the water. The hole in the flower pot must be fitted with a cork; the butter will then be in what we may call an air-tight chamber. Let the whole of the outside of the flower pot be then thoroughly drenched with water and place it in as cool a place as you can. If this be done over night, the butter will be as "firm as a rock" at breakfast time; or, if placed there in the morning, the butter will be quite hard for use at tea hour. The reason of this is, that when water evaporates it produces cold; the porous pot draws up the water which in warm weather quickly evaporates from the sides and thus cools it, and as no warm air can now get at the butter it becomes firm and cool in the hottest day.

To Keep Butter Cool Without a Cellar.—A correspondent of the *Boston Cultivator* says: "Cover the bottom of a large jar with coarse salt. Put the butter in a bag, place it in the jar and cover it with coarse salt; place the jar in a north room, and the salt will keep the butter nearly as cool, through the summer, as a common cellar."

Butter Pickle.—One gallon of water, one pound of fine salt, one ounce of saltpeter, two ounces loaf sugar, boiled and skimmed clear. Pour on cold and keep two inches above the butter.

To Sweeten Rancid Butter.—Beat the butter in a sufficient quantity of water, into which has been mixed twenty-five to thirty drops of chloride of lime to two pounds of butter. After having brought all its parts in contact with the water, it may be left for an hour or two; afterwards withdrawn and washed anew in fresh water. The chloride of lime used having nothing injurious in it, can safely be increased, but the quantity specified will be sufficient.

To Sweeten Butter Firkins.—Mrs. Arch. Cooper, Racine Co., Wis., sends the following directions to the *Am. Agriculturist*: “Before packing butter into new firkins, put them out of doors in the vicinity of the well, fill them with water and throw in a few handfuls of salt. Let them stand three or four days, and change the water once during that time. Butter firkins should be made of white oak, and this process effectually takes out the acid contained in that wood, and makes the firkins sweet. If the butter is well made and rightly packed, it will keep good all summer, even if the firkin be kept in store above ground. To cleanse old firkins in which butter has been packed and left exposed some time to the air, fill with sour milk, and leave standing twenty-four hours; then wash clean and scald with brine. This makes them as good as new.

To Detect Adulteration of Butter.—When beef fat and mutton are dissolved in benzole the former will crystalize at 68° Fahrenheit, while butter will remain soluble until it reaches 53°, when it falls in masses of beautiful velvety crystals. By this method of treating, the adulteration of butter with fat can easily be detected.

Clarified Butter.—Put any quantity of butter in a preserving kettle; boil it ten minutes; set it off, and when cold it will be a clear cake. Cut it out, scrape off the caseous sediment, return it to the kettle, and at boiling heat, seal it up in cans as you would fruit. Inferior but useful in scarce times. So says a correspondent of the *Valley Farmer*.

CHEESE.

Cheese Making.—Elisha Peck, of Onondaga Co., N. Y., recommends the following method: After your milk is already in a large cheese tub, put in the rennet and stir it thoroughly with the hand. Let it stand thirty or forty minutes, and cut it with a long, thin bladed knife. Let it stand about one hour, then dip it into a strainer, lying over a sink, and cut it a few times. Leave it till morning. Take the same course with the morning's milk as mentioned above. In the morning

cut both curds very fine for scalding. Put in the morning's curd first to scald. After that is well warmed up put in your evening's curd into a whey heated a little over blood heat. When you think it sufficiently scalded, dip it into a strainer laid over the sink, and let it drain quite dry. Take a common sized teacup even full of fine solar salt, and put one teacupful to every twenty pounds of curd. After mixing the salt well with the curd, put it to press, and let it stand twenty-four hours. Mr. Peck's cheese is considered the very best.

A correspondent of the *Country Gentleman* gives directions as follows: For a cheese of twenty pounds, a piece of rennet about two inches square is soaked in a pint of water about twelve hours. As rennet differs much in quality, enough should be used to coagulate the milk sufficiently in about forty minutes; no salt is put into the cheese, nor any outside during the first six or eight hours it is being prepared, but a thin coat of fine salt is kept on the outside during the remainder of the time it is in the press. The cheeses are pressed forty-eight hours under a weight of seven or eight hundred pounds. Nothing more is required but to turn the cheeses once a day on the shelves.

Premium Cheese.—The milk strained in large tubs over night, the cream stirred in milk, and in the morning strained in the same tubs; milk heated to natural heat; add rennet; curd broken fine and whey off, and broken fine in hoop with fast bottom, and put in strainer; pressed twelve hours; then taken from hoop, and salt rubbed on the surface; then put in hoop, without strainer, and pressed forty-eight hours; then put on tables, and salt rubbed on surface, and remain in salt six days for cheese weighing thirty pounds; the crushings are saved and set and churned to grease the cheese. The above is for making one cheese per day.

1. No salt to be put into the cheese, but fine salt rubbed on the surface. 2. Remain in press forty-eight hours. 3. Dry, cool cellar, not damp. 4. To make whey, add the rennet while the milk is warm.

Two Simple Rules in Cheese Making.—1. To ascertain how much cheese you ought to get from your milk: Multiply the number of pounds of milk by eleven—point off two figures for decimals, and the product is pounds and decimals of a pound of cheese fresh from the press. 2. For ascertaining the quantity of salt for cheese: Multiply the number of pounds of milk by three—point off three places for decimals. Your answer is in pounds and decimals of a pound.

Quantity of Cheese per Gallon of Milk.—A skillful manufacturer should, during the season, it is claimed, average a pound of pressed

curd from a gallon of milk, wine measure, or a pound of cured cheese from a gallon of milk, beer measure.

Nutritive Value of Cheese.—Professor Johnson says that a pound of cheese is equal in nutritive value to two pounds of flesh. The Europeans seem to be better acquainted with this fact than our own people. With us, cheese is regarded rather as a luxury, while in England it is considered one of the substantial articles of food, and it is not uncommon for workmen there to make a full meal on bread and cheese alone.

To Test and to Keep Cheese.—Rich cheese feels soft under the pressure of the finger. That which is very strong is neither very good nor healthy. To keep one that is cut, tie it up in a bag that will not admit flies, and hang it in a dry cool place. If mould appears on it, wipe it off with a dry cloth.

To Destroy Mites in Cheese.—A piece of woollen cloth should be dipped in sweet oil, which should be well rubbed on the cheese. Repeat as often as they appear, if one application does not destroy them. Wash the cheese shelves with soap and water.

Coloring for Cheese.—Annetto squeezed through a cloth until the color suits you.

Cheese Varnish.—One part beeswax, three parts fresh butter, melted, and seasoned strongly with Cayenne pepper.

Some dairymen coat each cheese thinly with a varnish made from shellac, dissolved in alcohol, when about to be shipped for market, and say it improves the appearance, and keeps the cheese from losing weight and gathering mould.

Extract of Rennet.—Fresh rennet, twelve ounces; fine salt, two ounces; proof spirits, two ounces; white wine, one quart. Digest for twenty-four hours and strain. A quart of milk requires two or three teaspoonfuls.

To make Stilton Cheese.—The following method, described in Morton's (British) Cyclopædia, for making the celebrated Stilton English cheese, may be useful to a large number of our readers:

The night's milk is set aside to cream, and in the morning it is skimmed, and the cream added to the new milk. The whole is now made of a proper temperature, (eighty-four degrees,) and the rennet then added. The curd should be fully formed in one hour and a half. If formed more quickly, it will be poor and tough; and if much longer, it requires to be warmed, which is also injurious. The curd is not broken up in the common way, but it is carefully removed in slices by the skimming dish, and placed upon a canvas strainer or sieve.

When the curd has been placed on the strainer, the ends are tied up, and the whey pressed out by gently twisting round the whole mass—the ends being stationary, and suspended on a stick laid across the cheese tub. It is allowed to drain until next morning, unless the weather is very warm, when the curd should be removed from the strainer, and placed in a clean dish in a cool place, where it is cut into thin slices, and put into a hoop made of tin, perforated with holes, and rather larger than the intended cheese. A clean strainer or cloth is put between the hoop and curd; and, as the slices of curd are laid in, a small quantity of salt is sprinkled between every second or third layer. The hoop containing the curd rests on a clean cloth, and is covered with another, but no weight is applied to extract the whey. Next morning the curd is taken out of the hoop, clean strainers and cloths are employed; it is then inverted and placed in the hoop as before, and afterward pricked with iron skewers in the sides to facilitate the extraction of the whey, and drying of the curd. These processes are repeated for four or five successive mornings, until the curd becomes firm. During this consolidating process, the cheeses are kept in a warm place, and in cold weather they are set in tins before the fire, or in heated ovens constructed for this purpose. It is necessary for the perfect extraction of the whey, that the drying temperature be raised to about one hundred degrees. The utmost cleanliness and care are indispensable during the whole process. The whey should have a free run from the curd, and the strainers should be washed and then dried thoroughly in the open air every time they are taken from the curd.

When the cheese has become sufficiently firm, it is pared and smoothed. The inequalities in the sides where the slices join are filled up by parings from the projecting parts, and the top and bottom are also smoothed by paring with the knife and lying alternately on a flat board. A strong fillet of canvas, long enough to encircle the cheese two or three times, is then firmly bound round it, and held tightly by strong pins; a clean, dry cloth is also placed under and above it. The binder and cloths are removed every morning, and all the cracks filled up. These operations are continued until the outside becomes hard and wrinkled, or coated, as it is termed. After this the cheeses are removed to the drying room, where they are regularly turned and cleared from the mites. In warm weather the flies are apt to attack cracks or soft parts of the cheeses; and when this occurs, the best plan is to scoop out the affected part, fill it up again with the soft part of another cheese kept for the purpose, and cover carefully with cloths.

The same method is pursued in making Cheshire and Gloucester cheese. One gallon of milk is allowed for one pound of cheese.

Smear Case,—Dutch Cheese,—Cottage Cheese,—Cheese Balls.—1. Pour over a crock or pan of thick milk sufficient boiling water to cover the surface; let it stand half an hour in a warm place, or until the whey begins to separate, then pour it into a thin muslin bag, and hang it up in as cold a place as possible, without freezing, until the water and whey are strained off. The milk must be thick, but not old, and should not be stirred before scalding.

2. Put a pan of fresh thick milk over a moderate fire. Let it remain until the whey is separated, care being taken that it does not boil. Drain off the whey; add salt to your taste, also cooking soda in the proportion of the size of a pea to six quarts of milk. Mix with good thick cream, (sweet or sour,) or cream and butter, and make up into balls for the table. The whole process will occupy about fifteen minutes.

3. A skillful housekeeper, at whose table we have frequently enjoyed well made cottage cheese, furnishes us with the following directions for making the two best kinds. The ball cheese is made as follows: Mix the curdled or loppard milk with an equal quantity of buttermilk, and place them over the fire in an iron vessel. The mixture should remain till it becomes hot, but not scalding, for if it is boiled the cheese is spoiled, and the work is foiled. It must be "severely" watched at this time, and as soon as it begins to curdle and the whey appear, take it from the fire. Put it in a bag and let it drain until the next day. Then mix enough salt with it to give it a proper flavor, and add either cream or butter to give it a proper consistency to work into balls—the cream to render it softer, or the butter to harden it, as the case may be. This is a good kind of cheese, but the following is better:

4. Pour boiling water from a teakettle spout into the pan containing the loppard milk, beating it all the time with a spoon, until it begins to granulate and the whey separates. About one-fourth of the quantity in hot water is usually sufficient. Then empty it into a colander, and let it drain about ten minutes. Pour on a quart or two of cold water, and as soon as this drains off apply salt enough to give it an agreeable taste. Put it in a dish for the table. Some persons prefer the addition of sweet cream when served. This kind of cheese is quite sweet. The first described has some acidity from the presence of the buttermilk, and on this account is frequently preferred by the sick.

5. After the milk becomes loppered, it should be put in tubs or barrels near a fire, where it will gradually become warm, when the curd will separate from the whey in the same way as if rennet had been used. The whey is drawn out into a cloth strainer placed in a sink where the whey can run off; bring the corners of the strainer together around the curd as tight as possible, and place a weight upon it; after it has drained what it will, place it in a hoop, and press it as you would a cheese; after pressing two hours, take the cheese out and crumble it to pieces, sprinkle in a little caraway seed, work it over, and make into balls that will weigh a fourth of a pound; these balls are dried on a shelf for two or three weeks, when they are ready for market.

Mohawk Cheese.—The milk is permitted to sour, but not to get thick, when it is heated with the cream stirred in, and while hot is salted, spiced, and placed on a very fine hair sieve, or loose linen cloth, until it is thoroughly drained, when it is worked into hard, round balls, about the size of a moderate apple, and in that form is set on the table, morning, noon and night.

Pot Cheese.—Take a crock or two of thick milk; put it on the stove; stir it occasionally; let it get milkwarm and no more; take it off and pour it into a thin bag; hang it up five or six hours, so that the whey will all run off; then take a bowlful and put on enough sour cream to make it quite soft.

Cream Cheese.—1. Take one quart of very rich cream, a little soured; put it in a linen cloth, and tie it as close to the cream as you can. Then hang it up to drain for two days. Take it down and carefully turn it into a clean cloth, and hang it up for two more days. Then take it down, and, having put a piece of linen on a deep soup-plate, turn your cheese upon it. Cover it with your linen. Keep turning it every day on to a clean plate and clean cloth until it is ripe, which will be in about ten days or a fortnight, or may be longer, as it depends on the heat of the weather. Sprinkle a little salt on the outside when you turn them. If it is wanted to ripen quick, keep it covered with mint or nettle leaves. The size made from a quart of cream is most convenient, but if wished larger they can be made so.

2. Take a quart of cream, or, if not desired very rich, add thereto one pint of new milk; warm it in hot water till it is about the heat of milk from the cow; add a small quantity of rennet, (a tablespoonful is sufficient;) let it stand till thick, then break it slightly with a spoon, and place it in a frame in which you have previously put a fine canvas cloth; press it slightly with a weight; let it stand a few hours,

then put a finer cloth in the frame ; a little powdered salt may be put over the cloth. It will be ready for use in a day or two.

3. Put a quart of cream into a clean jug, with half a teaspoonful of salt stirred in, and let it stand a day or two till thickish. Then we fold an ordinary glass cloth about six or eight times and sprinkle it with salt, then lay it in a sieve about eight inches in diameter. The sides of the cloth should come up well over the sides. Then pour in the cream, and sprinkle a little salt on it. Change the cloth as often as it becomes moist, and as the cheese dries press it with the cloth and sieve. In about a week or nine days it will be prime and fit to eat. The air alone suffices to turn the cream into cheese.

4. Take about a half pint of cream, tie it up in a piece of thin muslin, and suspend it in a cool place. After five or six days, take it out of the muslin and put it between two plates with a small weight on the upper one. This will make it a good shape for the table, and also help to ripen the cheese, which will be fit to use in about eight days from the commencement of the making.

5. Take a quart of cream, either fresh or sour, mix about a salt-spoonful of salt and the same quantity of sugar. Put it in a cloth with a net outside, hang it up, and change the cloth every other day ; in ten days it will be fit for use.

Pea Cheese.—There is a very close resemblance between several animal and vegetable substances. Thus, animal milk contains a large quantity of casein, which is the principal substance in cheese ; and peas also contain a large amount of the same substance. The Chinese, who have exhibited such an aptitude for domestic economies that they even make soup of birds' nests, have also found out that cheese can be made of peas. For this purpose, peas are boiled into a thin paste, then passed through a sieve, and an acid added to the pea solution, which becomes curdled like sweet milk by the action of the common rennet upon the latter. The solid part is then salted, pressed into cheese-moulds, and it gradually acquires the taste and smell of cheese. It is sold in the streets of Canton under the name of "Taofoo," and when fresh, it is a favorite article of Chinese food.

BEVERAGES.

WATER.

Summer Drinks.—Whatever tempts to drink liquids—even cold water—in hot weather, endangers health and life itself. If a man is really thirsty, there is nothing more delicious, nothing which is more gratefully and perfectly satisfying, than a glass of cool water, with the advantage of its costing nothing, and besides leads to no bad habits. The men in glass manufactories, where the heat is fearful, drink water only, and that not iced, and remain healthy and vigorous. Field hands on cotton and sugar plantations find a wholesome drink in a drink of molasses and water. This is a safe drink for harvesters; so also is buttermilk, it being not only cooling and nutritious, but otherwise healthful as a liver stimulant.

Drinking Water.—Half a glass of water, drank in sips, swallowing each sip, with a few seconds interval, will more effectually satisfy thirst, and that without any danger, than a quart taken in the usual manner at one draught. It is greatly safest, *while heated*, to rinse the mouth only, but to do that to the utmost extent desired, spiriting out the water as soon as it becomes warm. Chewing even a stick or pebble moderates thirst.

How to Quench Thirst with Sea Water.—The skin absorbs water enough to quench thirst, but when salt water is used, the salt is strained out and excluded. If persons destitute of fresh water at sea will dip towels in salt water and wear them around the abdomen, renewing them every hour or two, they will scarcely suffer at all from thirst.

A Spring that will not Quench Thirst.—Lieut. Whipple, in his memoir of travels in California, states there is a spring of cool, sweet water in San Diego county, not far from the desert, which has no power of quenching thirst.

To Soften Hard Water.—An ounce of quick lime dissolved in nine quarts of water, and the clear solution put into a barrel of hard water; the whole will become soft water when clear.

To Prepare Limestone Water for Those Unaccustomed to Drink it.—One teaspoonful of vinegar in a pint of such water will antagonize all its ill effects on the bowels of those unaccustomed to it.

To render Surface Waters Wholesome.—Boil, and allow to cool and stand a few hours, stirring it occasionally.

Purifying Dirty Water.—It is not so generally known as it ought to be that pounded alum possesses the property of purifying water. A tablespoonful of pulverized alum sprinkled into a hogshead of water—the water stirred up at the same time—will, after a few hours, by precipitating to the bottom the impure particles, so purify it, that it will be found to possess nearly all the freshness and clearness of the finest spring water. A pailful containing four gallons may be purified by a single teaspoonful of the alum. Dr. Hall says as much powdered alum as will rest on a dime, stirred in a pail of dirty water, will clarify it in five minutes.

Cooling Water Without Ice.—The following is a simple mode of rendering water almost as cold as ice. Let the jar, pitcher, canteen or vessel used for water be surrounded with one or more folds with woolen cloth or coarse cotton to be constantly wet. The evaporation of the water will carry off the heat from the inside, and reduce it to a freezing point. In India and other tropical regions, where ice cannot be produced, except by artificial means, this is common.

Earthen Refrigerators.—We believe that refrigerators of porous earthenware may be made and used with satisfaction without requiring ice. Of course ice is the most convenient and acceptable cooling agent, but when it cannot be obtained or is too expensive, porous earthenware refrigerators may be substituted. The natives of oriental countries keep their water in porous earthenware vessels, from which they obtain cooling draughts. By placing a porous vessel containing water in the sunshine, and sprinkling water upon its surface, the water inside will become almost ice cold. Evaporation produces a cooling effect upon surrounding objects; and the water in the porous vessel has its heat extracted by the above evaporating process. This is practically the best of all known modes of cooling water, where ice cannot be obtained. The vessel should be set in a current of air, when the evaporation will go on more rapidly.

A Strange Drink.—An old toper bet that he could, when blindfolded, tell each of several kinds of liquor. When brandy, whisky, gin and other drinks were presented to him, he pronounced correctly what they were. At length a glass of pure water was given him; he tasted it, paused, tasted it again, considered and shook his head. He at last said: "Gentlemen, I give it up. I am not used to that sort of liquor."

National Beverages.—All Europe has chosen its prevailing beverage. Spain and Italy delight in chocolate; France and Germany, Sweeden and Turkey, in coffee; Russia, Holland, and England, in tea.

while poor Ireland makes a warm drink from the husks of the cocoa, the refuse of the chocolate mills of Italy and Spain. All Asia feels the same want, and in different ways has long gratified it. Coffee, indigenous in Arabia, or the adjoining countries, has followed the banner of the Prophet wherever his false faith has triumphed. Tea, a native of China, has spread spontaneously over the hill country of the Himalayas, the table lands of Tartary and Tibet, and the plains of Siberia—has climbed the Altai, overspread all Russia, and is equally despotic in Moscow as in St. Petersburg. In Sumatra, the coffee leaf yields the favorite tea of the dark skinned population, while Central Africa boasts of the Abyssinian *chaat* as the indigenous warm drink of its Ethiopian peoples. Everywhere un-intoxicating and non-narcotic beverages are in general use, among tribes of every color, beneath every sun, and in every condition of life.

TEA.

Tea is said by persons familiar with the subject to be a chosen beverage of one-half of the human race, being drank by 500,000,000 people. The peculiar principle of tea is a substance called *theine*. About three pounds of this substance are obtained in one hundred pounds of tea. When taken into the human system it excites the brain to increased activity and soothes the circulating system, so that it prevents too rapid a change of the materials of the body, and thus economizes food. It is no this effect that the value of tea as an article of diet chiefly depends. Should tea, however, be taken too largely, it acts injuriously, producing trembling of the limbs, irritability of temper, and even wandering of the mind; these symptoms are produced if as much as one ounce of tea (which contains about eight grains of theine) be taken in a day. It is said that when these annoyances have been produced by a continued excess of tea, it is desirable to have recourse to cocoa for some days, when the irritable symptoms rapidly subside, and the use of tea may be resumed, care being taken to employ it in moderation. The evil effects of inordinate tea drinking do not at all detract from its utility when taken in due moderation. The circumstance that all nations, removed but one degree from absolute barbarism, employ some unintoxicating and unfermented beverage, is of itself a sufficient proof that there is in the human system a positive want of some such article of diet; and the singular fact that all the materials so employed, of which the most important are tea, coffee, chocolate, and the peculiar substance called

mate or Paraguay tea (of which about 8,000,000 lbs, are annually consumed in South America,) contain a peculiar and almost identical crystallizable substance similar to theine, confirms this supposition.

Beneficial Influence of Tea.—The beneficial results of the introduction of tea and coffee have been strangely overlooked or underrated. It has been, however, well described as leading “to the most wonderful change that has ever taken place in the diet of modern civilized nations—a change highly important both in a moral and physical point of view. These beverages have the admirable advantage of affording stimulus without producing intoxication, or any of its evil consequences. Lovers of tea and coffee are, in fact, rarely drinkers; and hence the use of these beverages has benefitted both manners and morals. Raynal observes, that the use of tea has contributed more to the sobriety of the Chinese than the severest laws, the most eloquent discourses, or the best treatises on morality.

Tea Brands and their Meaning.—“Hyson” means ‘before the rains,’ or ‘flourishing spring,’ that is, early in the spring, hence it is often called ‘Young Hyson.’ “Hyson Skin” is composed of the refuse of other kinds, the native term for which is ‘tea skins.’ Refuse of still coarser descriptions, containing many stems, is called ‘tea bones.’ “Bohea” is the name of the hills in the region where it is collected. “Pekée” or “Pecco” means ‘white hairs,’ the down of tender leaves. “Powchong,” ‘folded plant.’ “Souchong,” ‘small plant.’ “Twankay” is the name of a small river in the region where it is bought. “Congo” is from a term signifying ‘labor,’ from the care required in its preparation.

Making Tea.—Water for making tea should be used the moment it boils. If it is boiled some time, all the gas that is in it escapes with the steam, and it will not make tea of the best flavor. Clear, pure, soft water is the best.

How to Draw Tea.—An article in the *Western Christian Advocate* says: A few years since the writer took tea with a relative, and was delighted with the quality of the beverage. Upon inquiry, it proved that the article was from the same package used by another friend, whose tea always tasted miserably, and the difference was wholly owing to the methods used in its preparation. The last named person followed the usual plan of pouring boiling water upon the tea, which causes the most of the aroma to escape with the steam. The other adopted the following process, which I have since practiced and will recommend: Pour tepid or cold water enough on the tea to cover it, place it on the stove hearth, top of a kettle, or any place where it will be warm, but not enough so to cause the aroma to es-

cape in steam. Let it remain about half an hour, then pour on boiling water and bring to the table.

Drinking Tea.—If the milk and sugar are introduced when the tea is first brought, their cooling effect is applied to the cup in its hottest condition, and the reduction of temperature is checked; while if the rapid cooling is allowed to go on awhile first, and then the temperature is reduced by the addition of the cold milk and sugar, the tea is made very cold, and its flavor is ruined. So you see, when I put the milk and sugar into my tea as soon as it is brought, I do it on philosophical principles.

Adulteration of Tea.—It is well known that a great deal of the tea used in this country is spurious. It has not a particle of the real tea in it. Many do not know what good tea is. Mr. Carpenter, of New York, says much of the tea sold in that city is manufactured there, out of the very worst kinds of refuse stuff, worked up to appear like good green tea. Mr. Burgess says that women are constantly going around to houses in London to gather the tea leaves that have been used to make over into tea for the American market.

The tea plant grows in the Agricultural Garden at Washington. It is said that it makes a finer flavored dish of tea than that usually imported. It is drank without milk, and has a rich oily taste.

Substitutes for Tea.—Solon Robinson states that the tea shrub called "Yupou" that grows in Virginia and North Carolina, makes a very drinkable tea. Mr. Burgess mentions the *Viburnum prunifolia*, as the best, probably, of all substitutes for tea. This shrub is known in this country as the Nannyberry. The leaves should be gathered when about half or three-fourths grown, and prepared somewhat as the Chinese prepare tea leaves.

Making Coffee and Tea.—It is an old, but nevertheless true saying, that there is daily to be heard and seen something new. Good tea and coffee are beverages that all are fond of, and yet how few there are who know how to suit the tastes of those who keenly relish them. The *Scalpel* reverses the old practice and theory, and says that the true way to obtain good coffee and tea is to put them into cold water, and heat them up to the boiling point, and keep them at that point for a minute or so, in close vessels so as to prevent any escape of steam. Then, while the flavor is diffused through the liquid, pour it out, sweeten and drink it.

COFFEE.

How Coffee came to be Used.—It is somewhat singular to trace the manner in which arose the use of the common beverage of coffee, without which few persons in any half or wholly civilized country in the world, now make breakfast. At the time Columbus discovered America, it had never been known or used. It only grew in Arabia and Upper Ethiopia. The discovery of its use as a beverage is ascribed to the superior of a monastery in Arabia, who, desirous of preventing the monks from sleeping at their nocturnal services, made them drink the infusion of coffee, upon the report of shepherds, who observed that their flocks were more lively after browsing on the fruit of that plant. Its reputation spread through the adjacent countries, and in about two hundred years it had reached Paris. A single plant, brought there in 1714, became the parent stock of all the French coffee plantations in the West Indies. The Dutch introduced it into Java and the East Indies, and the French and Spanish all over South America and the West Indies. The extent of the consumption now can hardly be realized. The United States alone annually consume it at the cost, on its landing, of from fifteen to sixteen millions of dollars.

How to Make a Good Cup of Coffee.—The best coffee is Mocha. The best usually obtained is Java. Maracaibo is a good coffee. Rio coffee is much used. Coffee improves by age. Before burning, remove all gravel, dirt, imperfect berries, &c. Use a coffee-browner, spider, or frying skillet. They are better than a dripping pan. Let the fire be hot when you put it into the oven. Keep it evenly spread and the oven closed, except when stirring, which should be done quickly and every minute, being sure to not let the grains burn on the bottom. Twelve, fifteen or twenty minutes should be sufficient. A slight smoke, gradually increasing, then strictest care to prevent burning, until it is the color of a chestnut, when the roasting is completed. Remove it at once from the oven. If there are any burned or imperfectly roasted grains, pick them out. The latter may be roasted further afterwards. The former are spoiled. Put the roasted coffee immediately into a bottle, and keep corked tightly. If roasted as it should be, there will be a coating of oil. If at once bottled and corked tight, time will increase the oil and improve the flavor of the coffee. Otherwise the fine aromatic oil will escape. Grind very fine, and no more than is wanted at the time. Take the white of a fresh egg, and mix just sufficient to moisten the coffee, not enough to make it lumpy. Put it into hot water and boil four or five minutes. Set on the table a

minute or two before pouring out. Add immediately sweet cream or boiled milk and pure white sugar. Let it stand five minutes, stirring occasionally. Then drink. Do not drink sooner. Follow directions minutely.

The above is the substance of an excellent article published in the *Am. Agriculturist*. If any better directions are to be had, we shall be greatly obliged to get them. We shall not look for them. A great many other methods are practiced, a few of which follow :

Soyer's Simplified Mode of Making Coffee.—Put one ounce of ground coffee in a pan, which place over the fire; keep stirring until quite hot, but take care it does not burn; then pour over quickly a quart of boiling water; close it immediately; keep it not far from the fire, but not to simmer; then fill your cup without shaking it; or pass it through a cloth into a coffee-pot, or it may be made sometime previous and warmed again. The grounds can be kept and boiled for making the coffee of the next day, by which at least a quarter of an ounce is saved. In country places, where milk is good and cheap, I recommend that half boiled milk should be used with the coffee. The economy of this plan is fully ten per cent.

Another Method.—Coffee should be roasted until it has acquired a brown color, but never *burned*, for in that case the aroma or flavor is in a great measure lost, and the coffee will look black and have a bitter, unpleasant taste.

To Prepare for Use.—Take a quart of water and half a teacup of ground coffee; into this put the white of one egg, with a little water, and stir the mixture together; then put it in the pot; turn on boiling water, and let it boil for half an hour; then take it from the fire—fill up with boiling water. After this, pour into the coffee a little cold water, and let it stand a few minutes, when it will be ready for use. When eggs cannot be had to settle the coffee with, a very good substitute may be had in the skin of dry codfish, or the rind of salt pork, putting a small piece of either in the pot before putting in the water.

Another.—To make and clear coffee: Put a sufficient quantity of the coffee into the pot, and pour boiling water on it; stir it, and place it on the fire. Make it boil, and as soon as four or five bubbles have risen, take it off the fire, and pour out a teacupful and return it; set it down for one minute, then pour gently over the top one teacupful of cold water; let it stand one minute longer, and it will be bright and fine. The cold water, by its greater density, sinks and carries the grounds with it.

To Make Clear Coffee.—The *Scientific American* recommends to stir one egg into half a pound of ground coffee, and set away for use as required. No further substance for settling will be needed, and the egg tends to preserve the aroma. Coffee in roasting loses about sixteen per cent. in weight.

Another plan, published in the *Country Gentleman* is to pick, wash and drain the coffee; roast it of a nice, brown color; when you can mash it with your fingers it is done. Many people stir in an ounce of butter to a pound of coffee. It is best fresh roasted, but as that is too troublesome in real business families, it is usually prepared once a week, and immediately put in close cannisters. One pound of coffee to a gallon of water is the prescribed quantity, but we think used by few. Mix the ground coffee with the white of an egg; when the water boils, stir it in and boil hard for a few minutes; then set it where it will boil slowly for ten minutes. Coffee should be made just before wanted for use. Before pouring it into the urn, pour a cupful back and forth until it seems clear. You may use a strip of izinglass instead of the white of an egg, or you may, when you want the coffee, after it cools, glaze it, using the whites of two eggs to each pound of coffee.

Economical Mode of Clearing Coffee when Eggs are Scarce.—A correspondent says: We have frequently had the whites of eggs left out when making puddings, custards, &c. When they are to spare, beat them to a stiff froth, spread them on clean white paper, which is easily dried in the air or warm oven, after which, roll it into a scroll and put away in a dry place. Before making coffee, cut off a piece two inches square, or larger, according to quantity of coffee, lay it in a gill of cold water till sufficiently moistened to make a slight mucilage, which pour on to your ground coffee, and mix well together—then all to your boiler of water, which should be boiling hard at the time; your coffee can be made in the usual way. The inside skin of the egg shell answers the same purpose, dried and put away in paper bags; use them in the same way in making coffee.

To Obtain the Genuine Flavor of the Coffee.—The aroma which resides in the essential oil of the coffee berry is gradually dissipated after roasting, and, of course, still more so after being ground. In order to enjoy the full flavor in perfection, the berry should pass at once from the roasting pan to the mill, and thence to the coffee pot; and again, after being made, should be mixed, when almost at boiling heat, with the hot milk. It must be very bad coffee, indeed, which,

these precautions being followed, will not afford an agreeable and exhilarating drink.

An Improved Method of Making Coffee.—This is taken from a paper of 1787: "To an ounce of ground coffee add a common teaspoonful of the best flour of mustard-seed, previous to the boiling. To those unacquainted with the method it is inconceivable how much it improves the fragrantcy, fineness, transparency, and gratefully quick flavor of the beverage; and probably, too, it adds to its wholesomeness."

Adulterated Coffee and other Drinks.—A London professor lectured recently on adulteration of food. He handed round coffee which was pronounced excellent, then told the audience they had been regaled with a mixture of bullock's blood, chicory, sheep's liver, dried, and old coffee grounds. He gave them capital porter, too, made of spirits of wine, gum arabic and burnt sugar.

It is pretty well established that there is an enormous quantity of villainously adulterated stuff sold in New York, and distributed throughout the country under the name of tea and coffee. Mr. Selleck, of Connecticut, says that he saw two wagon loads of chicory hauled to one coffee grinding establishment in Chatham street, New York, in one day. Mr. Carpenter, of that city, says that a farmer can make better coffee of his own materials at home than the vile adulterations that he, as a merchant, knows are made in New York. Mr. Gale, of the same city, says: I know, and so does almost every one that knows anything about the matter, that much of the stuff sold as ground coffee derives not one-fourth part of its substance from the coffee berry. I speak from experience, as a merchant who has dealt largely in tea and coffee in former years, and know what vile cheating is practiced with those two articles of universal consumption.

Substitutes for Coffee.—Barley, rye, peas and orange carrots make a very pleasant and wholesome beverage, when used in part with pure coffee.

Carrot Coffee.—Carrots, dried, ground, and mixed with coffee to suit the taste. When clean, cut into pieces about half an inch square, then brown, and dry hard enough to grind easily by putting them into a tin under the stove or in the oven, being careful not to let them burn. When ground, use about one pound carrot to two parts coffee. Some use a larger proportion of the carrot, and some use the carrot alone.

2. Scrape and wash the carrots; then cut in small pieces, like kernels of corn, and dry; brown it the same as the coffee berry; use a

quantity sufficient to make it strong enough to suit the taste ; about a tablespoonful for one person, to be used *without* grinding. Some mix a small proportion of dandelion root. This is very palatable, and more wholesome than the coffee berry. Care in browning it is very necessary.

Chicory Coffee.—Chicory roots prepared the same as directed for carrot and used alone, or with coffee or dandelion root is very much used.

Another Good Cheap Coffee.—Take coffee and peas of equal quantities ; roast them well, separately, taking care not to burn them ; grind them together and serve up according to taste. By the addition of the peas, the coffee clears itself, and settles perfectly without any other addition, and moreover makes a much cheaper and wholesome beverage.

Another Home-Made Coffee Highly Recommended.—The contributor of this says : I send you a receipt for making coffee, sent to me by a friend from the West. We have used several kinds of home made coffee, but found none that gave such satisfaction as this :

Take one pint of Indian meal, one pint of wheat flour, half a teacup of molasses, a teaspoonful of salt, and add water to make it like dough. Then cut it out like yeast cakes. Put them in a pan and dry them in the oven. When thoroughly dry, brown them in the oven to a dark brown, nearly black. To make the coffee, put two of these cakes and a teaspoonful of ground coffee in the coffee pot, and pour on hot water the same as other coffee. Some use a tablespoonful of ground coffee and an egg.

Other Substitutes for Coffee.—Professor Mapes says that the best substitute for coffee is the seeds of okra. If well prepared, very few persons could tell it from the beverage made from the genuine coffee berry. Solon Robinson recommends the seeds of asparagus as an excellent substitute for coffee. George H. Hite says the best substitute for coffee he ever saw is made of sweet corn carefully prepared by roasting and grinding, just as you do the coffee berry. If mixed half and half with real coffee, he thinks no one would ever detect the adulteration.

CHOCOLATE.

To Make Good Chocolate.—Scrape up one pound best chocolate and dissolve it in a teacupful of boiling water ; then mix with six teacup-

fuls of fresh milk; let it come to a boil. It is then ready for the table.

If you will add eight well beaten eggs to the above preparation, with sugar, and bake it in cups, you will have a nice chocolate pudding.

ALE.

To Make Good Home-Brewed.—The art of brewing is very easily to be understood, for it is exactly similar to the process of making tea. Put a handful of malt into a teapot; then fill it with water—the first time rather under boiling heat. After it has stood some time, pour off the liquor just as you would tea, and fill up the pot again with boiling water. In a similar manner pour that off, and so go on filling up and pouring off till the malt in the pot is tasteless, which will be the case when all its virtue is extracted. The liquor or malt tea must then be boiled with a few hops in it, and when it becomes cool enough—that is about blood heat—add a little yeast to ferment it, and the thing is done. This is the whole art and process of brewing; and to brew a large quantity requires just the same mode of proceeding as it would to make a tea breakfast for a regiment of soldiers. A peck of malt and four ounces of hops will produce ten quarts of ale, and of better quality than can usually be purchased.

To Make English Home-Brewed Ale.—The following formula for the manufacture of home-brewed ale of the English yeomanry, will convey a very clear idea of the components and mixture of ordinary ales, which are, however, much more perfectly prepared under the elaborate system pursued in our extensive and well appointed breweries.—It is taken from Homan's Cyclopædia of Commerce.

“Home-brewed ale, as brewed by the middle classes in England, is usually made in quantities of two barrels, i. e. seventy-two gallons. For this purpose a quarter of malt, obtained at the malt house—or, if wished to be extra strong, nine bushels of malt—are taken, with twelve pounds of hops. The malt, being crushed or ground, is mixed with seventy-two gallons of water at the temperature of 160°, and covered up for three hours, when forty gallons are drawn off, into which the twelve pounds of hops are put and left to infuse. Sixty gallons of water at a temperature of 170° are then added to the malt in the mash tub, and well mixed, and, after standing two hours, sixty gallons are drawn off. The wort from these two mashes is boiled with hops for two hours, and after being cooled down to sixty-five degrees, is strained through a flannel bag into a fermenting tub, where it is

mixed with one and a half gallons of yeast, and left to work for twenty-four or thirty hours. It is then run into barrels to cleanse, a few gallons being reserved for filling up the casks as the yeast works over.

Ale from Acorns.—A recent number of the *Annales Forestiers* contains an elaborate article on the merits of acorn ale, said to be not only a very nutritious and agreeable beverage, but also a sovereign remedy against endemic fevers, dysentery, and other maladies caused by a residence in marshy regions and insufficient nourishment. This beer is described as being slightly effervescent, easy of digestion, and offering an excellent tonic and febrifuge. It is thus prepared: For a barrel of fifty gallons, prepare sixteen bushels of acorns, by steeping them for a fortnight in water—the water is to be changed every fourth day. At the end of this period, the acorns are placed in a cask with one pound of hops, and the cask is filled with water. The cask must be covered, but not closed, during the fermentation which ensues. At the end of a fortnight the acorn beer is fit for use. For every gallon of beer drawn off from the cask a gallon of fresh water is added, until the flavor of the beer is found to be growing weaker, when the cask is emptied, cleaned and dried, and a new brewing is begun. A barrel thus prepared, will furnish beer, it is said, sufficient for five persons during eight months. The acorns destined to this novel manufacture should be gathered before they begin to germinate, and dried in a garret or outhouse, by exposing to the air; they should then be placed in a new, dry cask, in alternate layers of acorns and oven dried sand, of five or six inches in depth; this cask must be kept in a very dry, cool place, and covered with dried leaves and earth, carefully dried and pulverized.

BEER, SODA-WATER, LEMONADE, ETC.

To Make Beer in Small Quantities.—Infuse five ounces of hops, one ounce of juniper berries, and half an ounce of elder flowers in sufficient boiling water to make nine gallons of strained infusion, to which add two pounds of sugar and seven ounces of gum (or dextrine;) dissolve the stirrings; let cool to about eighty degrees, and then mix with one ounce of brewer's yeast, and fill into a (quarter) keg; leave it for a day in a medium temperature, with the bung hole loosely covered. After fifteen hours more it must be bottled, and becomes fit to drink after a week. The juniper berries as well as the elder flowers may be omitted to suit different tastes.

A Cheap Beer.—Prepare a five or ten gallon keg, in proportion to the size of the family—draw a piece of coarse bobinet, or very coarse book-muslin over the end of the faucet that is inserted into the keg. to prevent its choking, a good tight bung, and near to that a gimlet hole, with a peg to fit it tight.

For five gallons: One quart of sound corn, put into the keg, with half a gallon molasses; then fill with cold water to within two inches of the bung. Shake well, and in two or three days it will be fit for use. Bung tight.

If you want spruce flavor, add one teaspoonful of essence of spruce—lemon, if lemon is preferred—ginger, or any flavor you prefer. The corn will last to make five or six brewings; when it is exhausted, renew it. When the beer passes from the vinous to the acetous fermentation, it can be corrected by adding a little more molasses and water.

This is a simple, cheap beverage, costing but a few cents a gallon. After the beer becomes ripe, it ought to be kept in a cool place, to prevent it from becoming sour before it is exhausted.

Small Beer.—For making three gallons of beer, or one pailful, take one quart of West India molasses, one ounce essence of spruce, one ounce essence of wintergreen, half an ounce essence of sassafras; fill the pail with hot water, mix it well, let it stand till it has become blood warm, then add one pint of yeast; let it remain ten or twelve hours, bottle, and in three hours it will be fit for use and first rate.

Spruce Beer.—Put into a large kettle ten gallons of water, quarter of a pound of hops, and a teacupful of ginger. Boil them until the hops sink to the bottom. Then dip out a bucketful of the liquor, and stir into six quarts of molasses, and three ounces and a half of essence of spruce. When all is dissolved, mix it with the liquor in the kettle, strain it through a hair sieve into a cask, and stir well into it half a pint of good strong yeast. Let it ferment a day or two, then bung up the cask, and the beer may be bottled the next day. It will be fit for use in a week.

For essence of spruce, two pounds of the outer green sprigs of spruce fir, (or hemlock) boiled ten minutes in the liquor, may be substituted.

Another Spruce Beer.—Boil a handful of hops in two and a half gallons of water, and when it is lukewarm, stir into it a tablespoonful of ground white ginger, a pint of molasses, a tablespoonful of essence of spruce, and half a pint of yeast. Mix all well together in a stone jug, and let it ferment for a day and a half, or two days. Then put

it into bottles, with three or four raisins in the bottom of each, to prevent any further fermentation. It will be fit for immediate use.

To make Ginger Beer.—The following is a very delicate, refreshing summer drink, much preferred by many to spruce beer, and more easily made :

Break a pound and a half of best loaf sugar, and mix with it three ounces of best white Jamaica ginger, broken as fine as possible, and the grated peel of two lemons. Put these ingredients into a large stone jar, and pour over them two gallons of boiling water. When it becomes milkwarm, strain it and add the juice of the lemons and two large tablespoonfuls of yeast. Make this beer in the evening, and let it stand all night. Next morning, bottle it in strong glass or stone bottles, tying down the corks with twine. It is better after standing a few days.

Another.—"Take eight gallons of warm water and one gallon of New Orleans molasses, and a small handful of hops, and boil them in a gallon and a half of water, and strain it in with the other warm water. Then take two large tablespoonfuls of good ginger, and put it in and mix it well, and then put in two tablespoonfuls of good cream of tartar. Next, put in one and a half gallons of good yeast, and mix it all well, and let it stand for six or eight hours, or rather until it has worked a good scum over the top. Take a clean cloth and wash it in warm water, and wring the water out and lay it in a colander and strain carefully ; bottle and cork, and tie up so that the strings will make a cross on the top of the cork. Set the bottle out in the hot sun for two hours, and then put them in a good cold cellar or spring house, and let it get one day old, and then you will have good beer.

"Skim before you strain ; also, before you put the ginger and molasses, and the cream tartar and yeast in your water, make it a little cool, a little more than milk warm, but no warmer, or else it will kill your ingredients." These directions, when strictly followed, make a superb drink.

Another way to make Ginger Beer.—Two gallons of ginger beer may be made as follows : Put two gallons of cold water into a pot upon the fire ; add to it two ounces of good ginger, and two ounces of white or brown sugar. Let all this come to a boil, and continue boiling for an hour. Then skim the liquor, and pour it into a jar or tub along with one sliced lemon and a half an ounce of cream of tartar. When nearly cold, put in a teaspoonful of yeast to cause the liquor to work. The beer is now made, and after it has worked for two days strain and bottle for use. Tie the corks down firmly.

To Make Root Beer.—For roots, get burdock, sarsaparilla, dandelion, horse radish, and, if you can, wintergreen with leaves and berries. Clean them, but don't wash more than is necessary; boil in good soft water, with hops and black cherry bark enough to make it pretty bitter. Soak a couple of yeast cakes in water, and stir in flour so that you will have half a pint before rising, one pint after it rises. Strain the liquor from the roots when well boiled, and when milkwarm add the yeast and molasses to suit the taste. Stir well and cover.

Another.—For Spring: Take a handful each of yellow dock, dandelion, and sarsaparilla roots, sassafras bark, hops, and a little boneset, and boil till the strength is extracted. To three gallons of the liquor, after it is strained, add one quart of molasses, and when cool enough, three yeast cakes. Let it stand in a warm place eight or ten hours. Then strain and bottle. It will be fit for use the next day if the weather is warm.

Cream Beer.—Two ounces tartaric acid. Two pounds white sugar. The juice of half a lemon. Three pints of water. Boil together five minutes. When nearly cold, add the whites of three eggs, well beaten, with half a cup of flour, and half an ounce of essence of wintergreen. Bottle and keep in a cool place. Take two tablespoonfuls of this syrup for a tumbler of water, add one-quarter of a teaspoonful of soda. This is a famed drink for summer, effervescing, but much more slow, and therefore far pleasanter, than soda water.

Adulterations of Beer.—The principal of the Inland Revenue Department of England has just examined twenty six samples of beer, of which twenty were adulterated. In fourteen of these samples he found the prohibited articles called grains of paradise—grains which, however fit for Eden, are by law unfit for beer. In one of the fourteen he found, besides the prohibited grains, a portion of tobacco; in two others *cocculus indicus* was present in large and dangerous quantities; two samples contained capsicum, and two others proto-sulphate of iron.

In an article styled "Garbling," in Hunt's Merchant's Magazine, the following articles are enumerated with which lager beer is adulterated:

Gentian, flag root, maywort, wormwood, quassia, catechu, heath, broom, the common garden box, pounded oyster shells, egg shell, chalk, marble dust, *whiting*, sugar, molasses, beans, liquorice, caraway seed, alspice, ginger, pepper, mustard, grains of paradise, salt, *cocculus indicus*, (poison,) opium, tobacco, henbane, hemlock, oil of vitriol, sulphate of copper, copperas, alum, strychnine, snake-wood, augustura

bark, and the St. Ignatius bean. There is a compound worse than the witch's broth in Macbeth.

Haymakers' Drink.—E. F. Scott, of Bethlehem, Conn., says: When I commence haying, my wife takes rye or barley, and burns it just right for coffee, and then adds one-third as much sweet corn without burning, and grinds them together, and makes as much coffee every morning as will be drank through the day, not very strong or sweet, and strains it off into a pail or jug. I take it out to the meadow and set it down in the sun if you prefer it warm, or in the shade, if cool, and it is always ready, will hurt no one, and is victuals and drink, too. I seldom want a lunch when I use it. Molasses I think makes it better than sugar. Add milk to your liking.

This I consider the most healthy, the cheapest, and best for me, for beer I cannot drink, and spirits I want nothing to do with. I sometimes take a glass of tamarind-ade at noon, or at four o'clock, with my lunch; this sets a good edge for food, and is recommended by physicians as very healthy in hot weather, and I find them to be so, for I have most invariably had a sick spell in haying, in consequence of drinking too much water, until I commenced their use once a day in connection with coffee.

To make Soda Water.—Take pulverized bi-carbonate of soda and tartaric acid, crush the lumps with a case knife, fill a teaspoon, first with one and then with the other—striking it off with the edge of the knife, as you would a measure of grain—and then throw the contents in separate tumblers one-third full of cold water. If sweetened, let the acid be thrown into the tumbler containing the sugar, and when the powders are thoroughly dissolved, pour the contents of the tumblers together. Drink at once.

The quantity of soda and acid may be increased or diminished at pleasure, taking care always to use equal measures of each, so that the acid and alkali will perfectly neutralize each other.

Another Method.—Add to half a glass of water a quarter of teaspoonful of tartaric acid, two teaspoonfuls of loaf sugar, and a little lemon juice. Stir it well, and when you wish to drink it, add a quarter of a teaspoonful of soda.

Cream Nectar Recipe.—Take two pounds of refined sugar, four ounces of tartaric acid, and four quarts of water; when warm, add the whites of four eggs, beaten to a froth. Be careful not to let it come to a boil. When cool, strain it, and add a teaspoonful of essence of lemon to flavor.

Directions for use: Take two tablespoonfuls of the above syrup to

a glass filled two-thirds full of water, and add a very small quantity of carbonate of soda, and stir it until it effervesces. Drink immediately. Make the syrup in a brass or porcelain kettle. A gentleman who pronounces this the most delicious thing he ever drank, gave five dollars for the recipe.

Raspberry Vinegar.—Express the juice from raspberries; to one pint of juice add a quart of vinegar and one pound of white sugar; boil it till the scum rises, which skim off, and bottle it for use.

This is not only excellent, but made in a more economical manner than the raspberry vinegar for which directions have usually been given. It forms not only a pleasant summer drink when diluted with water, but in its more concentrated state constitutes an excellent medicine for colds, croup, &c.

How to make Metheglin.—Dissolve honey in water till it will bear an egg; boil it until the scum is all removed, then bottle and it is ready for use.

"Ginger Lemonade.—Boil twelve pounds and a half of lump sugar for twenty minutes in ten gallons of water; clear it with the whites of six eggs. Bruise half a pound of common ginger, boil with the liquor, and then pour it upon ten lemons, pared. When quite cold, put it in a cask with two tablespoonfuls of yeast, the lemons sliced, and half an ounce of izinglass. Bung up the cask the next day; it will be ready in two weeks.

CIDER.

To make good Cider.—The editors of the *Country Gentleman* give the following directions: Gather the apples, clean and dry, when ripe. Grind them fine, about one hundred bushels at a time. Let the pomace remain in the vat from twenty-four to forty-eight hours, according to the season, until fermentation commences, producing little bubbles on the surface; then express moderately, or rather let it drain out. Use dry clean straw to lay up the pomace; after the first run, the cider will be clear, high-colored, rich and mellow in taste. A full barrel of cider as it runs from the press will *shake down* from two to four quarts;—this should be well done by shaking and rapping the heads—then again filled to the full, bunged tight, and placed in a cold cellar, and allowed to work or ferment through a spile or gimlet hole, the froth working over. Towards the last, put in the spile gently, and raise it daily to let the wind puff out, putting it in quickly to keep the common air from it, continuing this as long as it requires vent.

After this, keep the cask tight, and all is done but the drinking of good cider, never hard or sour—there is nothing to make it work and become so.

Another Method.—A New Jersey cider maker, at Newark, recommends the following: The apples should be ripe and sound. Don't press the cheese until the cider runs clear. After filling the barrels remove them immediately to a cool cellar—let them stand with the bung open until the sediment begins to go down; then close them, and pretty soon after give it the first racking. About three rackings will remove all the sediment. Bottle before the weather becomes warm enough for the trees to put out; fill the bottles one-half inch from the corks; let them stand twenty-four hours after filling; then take a bowl of boiling water, dip the ends of cork to go in the bottle in the water; hold the bottle in the left hand by the neck, and drive the cork in with a piece of fence lath. The bottles are then buried in the sand in the cellar.

By this process our best Jersey apples will make cider that has often been drank by epicures for champagne wine, and will not change for years, only seeming to get more body.

Let no water be used on the straw.

In packing away keep the corks up.

Another.—The following method of making cider, which is valuable and should be followed, is extracted from Mr. W. O. Hickok's trade circular:

There are comparatively few persons who are aware how rich a drink it is when made pure; free from water, the taste of straw, and all the impurities that, under the old fashioned system of cider making, are incorporated into its composition.

When pure and well made, it is doubtless far healthier than wine, and for liver complaints it is a sovereign remedy. On this account alone, the portable cider mills that make cider without straw, are a benefit to the community; and when the farmer will take the same pains with his cider that the vine grower does with his wine, he will find an unlimited demand for it at highly remunerative prices; and if the severe excise tax now imposed on whiskey will turn the attention of the people to cider, it will confer an inestimable benefit.

Pick all the apples, rejecting those not sound, and wash them clean, and afterwards let them lie and get dry. Grind and press them, using no water or straw, or any substance that will give the cider an unpleasant taste, as on the purity and cleanliness of the apples depends the quality of the cider. Strain the juice through a woollen or other

close bag, put into clean barrels and set in a moderately cool place, keeping the barrel full all the time, so that all the impurities may work off at the bung. After it has done working rack it carefully off; let it stand a few days and bung it up. As the air tends to sour the cider it is a good plan to provide a bent tin tube, one end fastened in the bung and the other to drop down in a bucket of water. This will let all the gas pass off and not let the air get to the cider. The quicker the pomace is pressed after being ground, the lighter the color will be; and darker if not pressed for twenty-four hours after being ground. The cider from the second and third pressing will be the richest—the reverse is the case in making wine. Cider making should be conducted with all the care that wine making is. Most any good sour apple will make cider, but more generally an apple full of juice and not very good to eat, will make the best. The Virginia crab, perhaps excels all other apples for cider making.

When bottled up with a little rock candy and wired, it will, after standing some time, sparkle like champagne, when opened. To get cider very strong, expose it in a tub in extremely cold weather and remove the ice that forms; as this can be only water, it leaves the cider of additional strength.

Any substance put in to arrest the fermentation is of doubtful value, as all good cider must be perfectly fermented to be healthy. You had better depend rather on careful and clean making, and bottle tightly at the proper time.

Preserving Cider.—The main thing in keeping cider is to have the barrel clean and sweet, and the cider free from pomace and other impurities.

From an article by Prof. L. C. Loomis, M. D., published in the U. S. Agricultural Report for 1862, we extract the following excellent instructions: Cider is deteriorated, both from want of care of the fruit, and from impurity of the cask. If the apples are permitted to remain till there is considerable decay, the taste of decay will be transmitted through all the fermentation of the juice. A pure, sweet taste can only be derived from sound fruit; secondly, sufficient care is seldom used as to the cask. Fresh liquor casks are the most desirable. A good mode of treatment for other casks is the following: Soak for one or two days, then rinsing thoroughly; put in one or two buckets of water with a couple of tablespoonfuls of saleratus. Cork tight, and let remain, with occasional shaking, for twenty-four hours; turn off the saleratus water, and fill immediately with cider. As the fermentation takes place, the object is to cork the cask tightly as soon as

the pressure will not endanger it. This is a nice point of observation with each barrel. If it be strongly iron-bound, it will bear closing much earlier, thus keeping the cider sweeter and more lively through its entire drawing. The preservation of cider in this condition consists in checking by pressure the first fermentation before it is fully complete, and thus preventing the second. The cask should be completely air tight, as any leakage will allow the change to proceed. If bottled at this stage, it will remain indefinitely without change.

Professor Horsford's Method of Preserving Cider.—Professor Horsford, of Harvard University, has published a recipe for improving and preserving cider, by means of which it is claimed the progress of the vinous and acetic fermentations may be arrested at pleasure, and the cider (also wine) preserved in just such a state as may be desired.

Put the new cider into clean casks or barrels, and allow it to ferment from one to three weeks, according as the weather is cool or warm. When it has attained to lively fermentatation add to each gallon three-fourths of a pound of white sugar, and let the whole ferment again until it possesses nearly the brisk pleasant taste, which it is desired should be permanent. Pour out a quart of the cider and mix with it one quarter of an ounce of sulphite of lime for every gallon the cask contains. Stir until it is intimately mixed, and pour the emulsion into the liquid. Agitate the contents of the cask thoroughly for a few moments, then let it rest, that the cider may settle. Fermentation will be arrested at once, and will not be resumed. It may be bottled in the course of a few weeks, or it may be allowed to remain in the cask and used on draft. If bottled, it will become a sparkling cider—better than what is called champagne wine.

Prof. Horsford was the first to use the sulphite of lime for this purpose, and to him is due the credit of first calling attention to its usefulness. It is said to be in no respect deleterious, as the sulphate into which the sulphite is changed by the liberation of sulphurous acid, is entirely insoluble, and remains at the bottom of the vessel. The *sulphite* of lime, not the *sulphate* must be used.

A writer says he has cider prepared in this way ten years since, which has remained unchanged, and is now a beverage of unsurpassed excellence.

A correspondent of the *Country Gentleman* says: To a forty gallon cask of pure juice fermented to a point to suit the taste, add one bottle of prepared *sulphite of lime* (cost fifty cents,) stir it briskly and bung tight. Use on draught or draw off and bottle in the spring. It is superior to wine.

Keeping Cider by Stumming.—There are three stages of fermentation to which cider is subject, viz : the vinous, the acetous and the putrefactive. When cider has passed through the vinous fermentation, if left unchecked it soon runs into acetous, and from this it soon passes into the putrescent. Most of the cider put up by farmers passes into the second or acetous fermentation, becoming more or less sour and inebriating, and when drank by many persons, producing a flushed face and headache, and what is worse, producing crossness and ill-temper in many of those that use it as a common beverage. It would be far better to convert all such cider into vinegar.

If new cider is fermented in an open cask, after a time, longer or shorter, depending upon circumstances, all the heavier portions of extraneous matter, pomace, &c., will settle to the bottom of the cask, and the lighter flocculent matter will rise to the surface, forming a spongy, brown crust. Just as soon as the vinous fermentation has ended, cracks or fissures will appear in the crust. The liquor at this precise time is clear and bright. The grand secret in having a cider equal to pure wine, is to check any further fermentation. If the cider is left to itself, the acetous fermentation follows—the sedentary matter at the bottom of the cask rises, and the liquid becomes muddy—this, acting as yeast, produces a second and more violent fermentation, resulting generally in “hard cider.”

When the white bubbles begin to appear the crust should be removed, and the liquid drawn off without disturbing the sediment at the bottom of the cask. Pour two or three pailfuls of the liquor into a clean, strong, tight barrel; then fumigate—that is, have prepared a long tapering bung with a looped wire inserted in the small end of it; in the lower end fix strips of cotton or linen cloth, dipped in melted sulphur, to form a good sized match, light it, and thrust it into the bung hole of the barrel—the match will burn till the oxygen in the barrel is used up—then withdraw the match, put in a common bung, and tip the cask in “double quick time” to the right and left, so as to mix, as far as possible, the liquor and gas in the barrel; then fill it full, put in a tight fitting bung, place it in a cool cellar, and in the course of a year or so there will be a barrel of apple juice that temperance ladies and children can partake of “without a blush or a scowl.”

Another way in which cider can be managed is: Soon after it comes from the press, strain it through a foot depth of clean washed, coarsish sand; after being strained, proceed as directed in the stumming, &c.

Give the casks no vent, but occasionally remove the spile in the vent hole for a moment.

Filtering Cider.—Cider is very much improved by filtering. In fact, there are those who assert it cannot be made so as to keep sound and not turn into vinegar, without filtering. This should be done when the first fermentation is over, by racking it off into clean barrels. A good plan for a filter was lately described in *The Scientific American*. It says: "Take a square or round wooden box, made of inch pine plank, three feet in diameter and one foot four inches deep. Make it with a bottom perforated with numerous one-quarter inch augur holes, over which should be laid coarse hemp bagging. Now fill in the box for eight inches with pieces of charcoal (animal charcoal is the best, but it is expensive,) about nut size, and on the top of this place a four-inch layer of clean washed sand, and cover all with a coarse hemp bagging, and you have a cheap and good filter. Any number of such filters may be used, according to the quantity of cider to be operated upon, and the tow cloth can be frequently washed without disturbing the sand and charcoal. Before any cider is filtered through, pass a stream of clear water into the filter for fifteen minutes, so as to remove any fine, loose particles of charcoal that otherwise would be mixed with the cider."

Oiling Cider.—Somebody writes for the *New York Tribune*, "When a barrel of cider is tapped, it grows hard; that is, more and more acid, until it gets too hard to drink, if it is kept long on tap. This is occasioned by the air, which fills the cask above the cider as fast as it is drawn out. The air cannot be excluded, even if the cask was air-tight, because the cider will not run from the tap if there is no air to press it out. If cider is exposed long to air, it will become vinegar. In fact, the way to make vinegar of cider is to expose it to the air as much as possible. To prevent the cider on tap from becoming acid, it is recommended, as soon as a gallon or two is drawn out, to pour in the bung-hole about half a pint of clear sperm oil, or sweet oil if it is preferred. It should be warm when poured in, and it will spread in a thin coat over the surface, and keep spreading as the cider is drawn down, and thus exclude the air, without giving any taste of oil to the cider.

This plan of preserving cider is worthy of further attention. We have faith in it from knowing that oil-casks are the best we know of for storing cider, imparting no flavor, and keeping it sound as bottled cider for years. Old oil-casks are more valuable for cider-casks than for any other purpose that we know of."

Clarified Cider.—"Mix one quart each of lime and clean, dry ashes, and two quarts of new milk. Pour them into a hogshead of cider just from the press. In ten hours it is fit to rack." Contributed to the *Country Gentleman*.

Alum in Cider.—Mr. Hillsboro states to the N. Y Farmer's Club: The best barrel of cider that I ever saw had a handful of alum put into it in November. It did not remain sweet, but the next summer it was a most delicious drink.

Izinglass in Cider.—N. C. Ely says: Cider may be purified by izinglass. Dissolve izinglass in warm water, stir it gently with the cider, let it settle, and then carefully draw off the liquor. Treat wine the same way.

Mustard Seed—one pint to a barrel of cider—will, it is said, keep it sweet several months.

Heating Sweet Cider to Preserve it.—One writer says: The cheapest, simplest, most effective way to preserve sweet cider is to scald it previous to fermentation. Heat it until it boils; then take it from the fire and cool it; put it in casks, and close them air tight.

Another says: Heat cider until it boils, then pour into a jug or other suitable glass or earthen vessel which should previously be heated to prevent cracking. Cork tight and seal immediately with cement the same as putting up fruits. It will keep unchanged for years. There need be no doubt of this.

Another way to keep sweet cider is simply to boil it down to one half or one third.

Boiled Cider.—The boiling should be conducted with care over a slow fire, to prevent burning and giving an unpleasant taste, and be continued till six gallons are reduced to one. The syrup thus made becomes an important preservative aid.

To Correct Musty Cider.—By boiling cider and adding to it some pieces of charcoal, its musty taste will be removed.

WINE.

In ripe apples, peaches, currants, blackberries, grapes, and similar fruits, there is a small per cent of sugar with little or no starch. The juice is, therefore, so to say, already past the saccharine fermentation, and ready for the vinous. Left to the action of the atmosphere, all these juices in a few days ferment, i. e. change whatever sugar there may be into alcohol, the amount of which will depend entirely upon the amount of sugar before fermentation. Such a juice is, in general

terms, a cider; if its percentage of alcohol is increased by adding sugar before the fermentation, it is a wine. The process of checking fermentation is similar in both, only that in the case of wine great caution is to be exercised not to cork too soon, as the energy of the fermentation, being much greater than that of cider, the safety of the corking may be exposed by too early closing. Mashing the fruit but not so as to bruise the seeds, the juice, on being pressed out is mixed with an equal amount of water, and from two to five pounds of sugar to a gallon of the mixture. Grapes usually require about three and a quarter pounds; currants, four pounds; blackberry and raspberry, three and a half pounds; peach and cherry, the same as grape; orange wine, the juice of a dozen oranges and three pounds of sugar to a gallon of pure water; the sugar in all cases should be the best white lump, or crystalized. After the fermentation has nearly ceased, it must be stoutly corked, and four or five months later bottled tightly. Sealed well, it keeps for years without change. From the invaluable medicinal qualities of grape, currant and blackberry wines, the certainty of their purity, connected with the fact that nearly every wine of commerce is drugged and entirely unfit for the sick chamber, their manufacture for home use is daily becoming more extensive. No port, sherry, or madeira, as commonly found in our market, is at all comparable to these wines in medicinal excellence.

Wine as a Medicine.—A celebrated physician, residing at Metz, has written a treatise on the medicinal qualities of wine, in which he states that, considering wine in the point of view of the mineral salts which it contains in large quantity, such as potash, soda, lime, magnesia, iron, manganese, chlorides, carbonates, phosphates, the juice of the grape constitutes a real natural mineral liquid, as active, and even more charged with mineral principles than many justly esteemed spirits.

How to make Wine from Grapes.—Chas. A. Peabody, Esq., of Columbus, Georgia, a very successful manufacturer of wine, gives the following directions:

Let the grapes be fully ripe; gather them in clear, dry weather; look over the bunches and pick out all imperfect and rotten berries. Now, have the wooden troughs, trays, or tubs perfectly clean and sweet, and mash the bunches on the stems by hand. As the tray is filled, empty the mass into a clean tub, and so continue until all the grapes are mashed; stir the whole mass together in the tub, and leave it for fermentation. In a few hours bubbles will begin to rise, and in twenty-four to thirty-six hours the mass will become so agitated that

it will boil like a pot over the fire; watch it closely, now, and as the fermentation subsides, put the mass into strong bags, and by some strong lever power press the juice out; after the juice is all extracted, place it in a clean vessel and try its strength. If an egg will float in it so as to show the size of a quarter of a dollar, the juice will keep without the addition of sugar or brandy; if the egg sinks, add good brown sugar until it rises.

Now turn the juice into a sweet cask; five, ten, or thirty gallons, according to the quantity of the liquid; set the cask in a quiet, shady place in the attic or in the cellar. We prefer the attic. Leave the bung out, and from a pitcher of the juice, which should be reserved for the purpose, fill up the cask three, four, or five times a day for eight days; in the meantime all the impurities in the juice will work out at the bung hole; after eight days, place the bung slightly in the hole. Let it so remain for eight days longer, then drive it in, and seal up the cask tight as possible. Let the cask remain perfectly quiet, and any time after the March following it may be drawn off and bottled. It will be no injury to the wine that it remain on the lees for two or three years before it is bottled, as it ripens better and fattens upon the lees, but it may be used as soon as the March after the making.

An Italian Recipe for making Grape Wine.—An American, having written to a friend in Italy for instructions as to making wine, received the following broken English reply:

"The way to make wine with grapes is to stomp well them in a tob with a hol and spicket in the bottum, and put that juse in a barel where has been wine or whiskey, or liquors of some kind, otherwise the wine will stink of wood. Let them boil for forty days meanwhile making the barel full every day for the boiling diminish. Shot up it after the forty days, and longer you let him stay older it comes and better it will be."

The word "boil" means in this case "ferment." The rest is intelligible, and those who follow the receipt faithfully will find it a good one.

Another way to make Grape Wine.—We find in the *Country Gentleman*, from a correspondent, the following: "To one quart of water add one pound of moist sugar. Let them be well boiled and skimmed, and to every quart of this liquor put one pint of the juice of the grape. This has been well tried and approved."

Another.—By the editors of the *Scientific American*: Take any quantity of sound, ripe grapes, with a common cider-press press out

the juice, put it into barrels, cover the bung lightly; after fermentation has ceased cork it; place it in a cellar or house. In twelve months you will have good wine, which improves by age. Let it stand on its lees.

Fermenting Wine.—Col. Haraszthy, of California, one of the largest vine growers in the country, who is extending his vineyards five hundred acres per year, says: During its fermentation, wine must be excluded from the atmosphere, otherwise it will become sour. He says he closes the fermenting vats perfectly tight, and carries off the gases produced by fermentation by means of a siphon, which terminates under water in another vessel.

Centrifugal Wine Press.—M. A. Rheiler, of Stuttgart, has applied the centrifugal drum, such as has been used for expelling water from sugar in sugar refineries, to extracting wine from grapes. The grapes are placed in a drum, the periphery of which is formed of sheet iron, punched full of small holes, and the drum is then caused to rotate one thousand or twelve hundred revolutions per minute. The centrifugal force drives the wine through the holes, while the skins and pulp are retained within. It is stated that the yield of juice by this process is one-seventeenth more than is obtained by the best presses, that the juice is more perfectly separated from the albuminous matters contained in the grape, that the greater absorption of air causes a more rapid fermentation, and that the wine becomes clear and ready to bottle much earlier.

A Simple and Ingenious Wine Press.—A very ingenious, inexpensive and simple wine press is made use of at a vineyard near Castlemaine, Victoria. Advantage is taken in the vineyard of a strong overhanging branch of a gum tree, which is used as a fulcrum; under this a common screw-jack is fastened to a strong frame-work in a hogshead, which hogshead has a false bottom perforated with holes. The grapes are placed over this false bottom, and the screw presses the juice through the holes. A wooden tap is at the bung of the cask, and as the space fills, the juice of the grape is drawn off in buckets.

To make Currant Wine.—The following is from Mr. Bement, of Poughkeepsie, N. Y., who is regarded as the very best of authority:

To make a currant wine of first quality, and that which *will not sour*, it is essential that the currants should be picked in a clear, dry day, and when *fully ripe*, but not over-ripe. If over-ripe, they are usually shriveled a little, and are then unfit for first quality wine. The juice should be expressed from them as soon as possible after gather-

ing, and before fermentation commences, which may occur in one or two days after they have been picked in warm weather. In a small way they may be crushed with the hands, or bruised in a tub, and the juice expressed in a coarse cloth, by squeezing with the hands. On a large scale, they may be crushed in a small portable cider mill, and the juice extracted in a press. A clothes wringer may be used to squeeze the juice from currants, first putting them in a bag.

To every gallon of the juice add two gallons of clear soft water, and to every gallon of this mixture add four pounds of coffee crushed sugar. Put this mixture, after the sugar is thoroughly dissolved, into a clean keg or cask, according to the quantity you have, and fill up so the liquid comes up even with the top of the bung hole; this is to allow the scum and impurities thrown to the surface during the process of fermentation to escape. You must manage to have left over a little of the mixture, perhaps a quart will answer, for the purpose of filling up the vessel three or four times a day, as it gradually loses in quantity by the process of ejection at the bung hole, and evaporation. Let the fermentation continue about the period before named, then close up the cask before the fermentation has entirely ceased, but after the most violent stages of it have passed by. This can be ascertained by placing the ear to the bung hole and listening to the singing of the effervescence, and noting its gradually diminishing action and force. On closing, drive in the bung tight, and let it remain at rest until the February or March following, when, if it is perfectly fine and transparent, it may be drawn off and bottled. If it is not fine, it may be made so by adding to every gallon of the liquor one-quarter ounce of sulphite of lime. Draw a quart or so of the liquor, and dissolve the sulphite, and return the same to the cask, and mix thoroughly by stirring and shaking. In the course of one or two months it will become thoroughly fine and bright. When, however, everything works favorably, no fining is required.

The only objection that may be made to wine made after the above is that it may be a little *too sweet*, but this will wear off by age.

Another Method.—This is from the editor of the *Germantown Telegraph*. We have tried it and found it excellent. We think no better is needed. The requirements are simple, but must be strictly adhered to.

First crush the currants effectually, then place them in a strong bag, and press the juice out by whatever means will best effect it; then to each quart of juice add three pounds of pure, sifted, double-refined sugar, and then add as much water as will make one gallon.

Good brown sugar will answer, but not so well in retaining the fine flavor of the wine.

To make a ten gallon keg of wine, it will require ten quarts of currant juice and thirty pounds of sugar, filled up with water. Be sure that the sugar is well dissolved, by rolling over and shaking the cask, or in an open vessel, in which it should remain twenty-four hours, and be frequently skimmed. Fermentation will begin in one or two days, the bung being set upon the hole, and will continue some two or three weeks. After it has *entirely* ceased fermenting, rack off carefully, then thoroughly scald out the barrel, return the wine to the cask, tightly bung up, and leave undisturbed six months before using, when, if preferred, it can be bottled. It requires no clearing substance or spirituous liquors of any kind, as it is much better without either.

The keg, cask, or whatever vessel it may be made in, *should be full*, and as fermentation is going on and the extraneous substances thrown out of the bung, the vessel should be kept full by adding sufficient water every couple of days.

Another.—The following directions are from the *Massachusetts Ploughman*, and if followed will make an excellent wine :

Before pressing the juice from the currants pass them between a pair of rollers to crush them, after which they may be placed in a strong bag, and they will part with the juice readily by light pressure, such as a common screw, weights, &c. To each quart of juice add three pounds of treble refined loaf sugar—single refined is not sufficiently pure—then add as much water as will make one gallon. Or in other words, suppose the cask intended to be used be thirty gallons. In this put thirty quarts of currant juice, ninety pounds of double refined sugar, and fill the cask to the bung with water ; roll it over until the sugar is all dissolved. This will be told by its ceasing to settle in the barrel. Next day roll it again, and place it in a cellar where the temperature will be sure to be even, leaving the bung open, a slight noise will be heard, such as may be observed when carbonic acid is escaping from champagne or soda water. Fermentation will commence in one or two or three days, and will continue for a few weeks, converting the sugar into alcohol. As soon as this ceases, drive the bung in tightly, and leave the cask for six months, at the end of which time the wine may be drawn perfectly clear, without any excess of sweetness.

Another.—By the following method currant wine has been very successfully manufactured, and sold largely for medicinal purposes : Quality will depend upon proportions of juice, water, and sugar. Currants

should be *fully* but not *over ripe*; grown with full exposure to the sun, except shade of their own properly-trimmed and well-cultivated bushes. They should be crushed and the juice expressed immediately after picking, before fermentation may commence. Let the juice be well strained and added to the sugar, then add water until all the sugar is dissolved.

Recipe No. 1.—10 gallons pure juice, 100 pounds good sugar, water sufficient to fill 40 gallon cask.

Recipe No. 2.—10 gallons pure juice, 80 pounds good sugar, 20 gallons water.

Mix well, put into very strong cask, (alcohol barrels,) in a cool, dry cellar, *and bung up tight, vent hole and all*, except the cask is old. If you do not stop the barrel tight, put gauze over the bung hole, to keep out flies, &c. Let the wine remain in the cask three months, then carefully rack into another before moving the first cask. After nine months more it will be fit to bottle, and will grow better every year. It is prescribed by physicians as a tonic.

Another.—A correspondent of the *Country Gentleman* gives the following:—"Take of currants, red, white, or black, separate or mixed in any proportion, four pounds, water one gallon, sugar three pounds. Place the contents, stems and all, in a suitable vessel, as a wash tub or barrel or crock, and as perfectly as possible mash them up with your hands or some implement, as a wooden pestle. Now add the water, and put the vessel in some moderately cool place. Fermentation will immediately commence, and the skins and stems of the currants will be forced to the top of the vessel, forming a sort of crust. This must be broken down with a stick, and the whole mass stirred up several times a day, and if any currants not broken are discovered, they should be broken with the hand.

"This process must be continued three days, by which time the fermentation will have ceased to be very lively. Now drain out the liquor through a sieve, and squeeze the pulp in a cloth. Put the liquor in a good sound cask; add the sugar and stir till it is dissolved. Fermentation will now set in again, and if possible the barrel should be filled, that the yeast which is formed in the liquor may be worked out. If the barrel is not full coarse millinet should be nailed over the bung, which must in any case be left open.

"When the fermentation is over, bung up tight, and leave it all winter. In the spring rack off before fermentation again sets in and riles all up again. After this fermentation the wine may be

bottled. If it should not work itself clear, it may be fined with the white of eggs, beaten to a froth, and stirred in after it is racked off."

The editor of the *Rural New Yorker* says "the red currant (or red Dutch) for wine making, gives a higher flavor than the white, and is considered a better producer. Three gallons may be obtained from a bushel of good ripe fruit. Make the wine in the same manner that you would a barrel of good sweet cider, with the addition of from three to four pounds of sugar to the gallon, fermenting off the pomace until it is entirely clear, after which it should be racked off into tight barrels and there remain any desirable time to become ripe and firm."

Maple Sugar for Currant and Berry Wines.—Maple sugar used with the juice of currants and berries makes a superior flavored wine, it is said, to juice treated with cane sugar. If you have plenty of maple sugar, we advise you to try it, especially in blackberry and elderberry wines.

Another Recipe for Currant Wine.—The *Scientific American* says: Use about one pint of sugar to one quart of the juice of the currants and watch the progress of the fermentation, daily, so as to check it at the right point. If you allow it to proceed too far, it will acquire a taste like vinegar flavored with smoke.

Elderberry Wine.—Mr. Bement, who is said to perfectly understand the art of making wine from currants and common fruits, contributes the following: "The berries when ripe, are picked by the stems, then stripped with the hands, or trimmed with shears. Next they are mashed fine, which may be done by means of a pounder similar to those used for pounding clothes. Let them remain until the next day when the juice is pressed out in a cheese press, or any other convenient way. Next, boil the juice twenty minutes; skim it, and add four pounds of sugar to the gallon. When milk warm add a small piece of bread crust that has been dipped in yeast. Let it stand three days, remove the crust, and the wine is ready for bottling. Age improves it. Some add spices to the liquor when boiled. This is a great favorite with the English."

Another.—Two quarts of water, one quart of elderberry juice, three and a half pounds of brown sugar. Let it stand in a warm place a week or more, until it ferments, then remove it to the cellar, and in a month strain it, rinse the jug or cask and pour it back. It will be fit for use in two or three months, but improves by age.

Blackberry Wine.—To make a wine equal in value to Port, take ripe blackberries or dewberries, press the juice from them; let stand

thirty-six hours to ferment, lightly covered; skim off whatever rises to the top; then to every gallon of the juice add one quart of water and three pounds of sugar (brown will do,) let it stand in an open vessel for twenty-four hours; skim and strain it, then barrel it, let it stand eight or nine months, when it should be racked off and bottled and corked close—age improves it.

Another.—The *Germantown Telegraph* says all persons who can conveniently do so, should manufacture enough blackberry wine for their own use every year, as it is invaluable in sickness as a tonic, and nothing is a better remedy for bowel diseases.

Recipe.—Measure your berries and bruise them, to every gallon adding one quart of boiling water; let the mixture stand twenty-four hours, stirring it occasionally; then strain off the liquor into a cask, to every gallon adding two pounds of sugar. Cork tight and let it stand till following October, and you will have wine ready for use, without any further straining or boiling.

Another.—Over as many quarts as you have berries, pour so many quarts of cold water which has been boiled; bruise the berries well, and let the whole stand for twenty-four hours, stirring it occasionally; strain the juice and put a pound and a half of sugar to each gallon of liquid; stir it until the sugar is dissolved, and put it into a cask with a quarter of an ounce of izinglass to two gallons of liquid. Let it remain open until the next day, when it should be bunged. In two months it may be bottled off, and will be found a very pleasant wine.

Raspberry Wine.—Bruise the finest ripe raspberries with the back of a spoon; strain them through a flannel bag into a stone jar; allow one pound of fine powdered loaf sugar to one quart of juice: stir these well together, and cover the jar closely. Let it stand three days, stirring up the mixture every day; then pour off the clear liquid, and put two quarts of sherry to each quart of juice or liquid. Bottle it off, and it will be fit for use in a fortnight. By adding Cognac brandy, instead of sherry, the mixture will be raspberry brandy.

Rhubarb Wine.—This is made of any of the varieties of rhubarb or pie-plant, fraudulently sold all over the country by dishonest traveling agents under the assumed name of "Wine Plant."

The juice of the rhubarb is extracted by the same process as currant, elderberry, or any other juice, and mixing with the juice an equal quantity of water. To each gallon add three and a half pounds of fair quality of New Orleans sugar. Put in barrels or casks, filled full, and fined with izinglass; being allowed to remain in the casks until

spring, and then bottled. By adding or diminishing the quantity of sugar, it will vary the strength of the wine in the same proportion.

Rhubarb is said to afford a greater quantity of juice than any other plant, and it is also considered by some a better quality than any but grape juice to make domestic wine. We think otherwise.

Professor Mapes' Method.—Prof. Mapes says: A good article cannot be made unless the cane sugar is converted into a cane product resembling grape sugar. This is done by first converting it into rock candy, and then boiling twelve hours in water slightly acidulated with sulphuric acid. The acid is afterward neutralized with the cream of chalk, stirred in as long as it produces any effect. The stalks may be cut in a common chaffing machine, and pressed in a cider mill. Put eighteen gallons of the juice in a cask of thirty gallons, with ninety-six pounds of the prepared sugar, and fill up with water. It will then ferment seven or eight weeks in a temperature of sixty degrees, when it should be bunged tight and kept till spring before racking off. It must be bottled or drawn into another cask before the weather becomes warm, else it will take a second fermentation, become turbid, and then cannot afterward be fined. If drawn into a clean cask, it is better to stand until the next autumn before bottling, or it may be kept, as well as any other wine, in the cask. I have some which has stood in my cellar five years, has been repeatedly drawn from, and by many persons is liked better than grape wine.

Another Way.—Take, for instance, a forty gallon cask. Fill it nearly full of rhubarb juice and water in equal proportions. Then dissolve one hundred and twenty pounds best white sugar, and add to this one tablespoonful of sulphuric acid to over five gallons wine. This converts the sugar into grape sugar. Then fill the cask full, and set it in an equable temperature to ferment, with the bung lightly laid on the hole. Let it stand until fermentation entirely ceases; then add the beaten whites of eight eggs, and shake the cask well, and keep it open for a week. Then rack it off into a clean cask and bung it up, or bottle it and let it stand for a year or two, when it will be better and more wholesome than nine-tenths of the foreign wines in the market. I will add that all other domestic wines may be made after this receipt, only adding or decreasing the quantity of sugar and water, as the first juice is more or less acid than the rhubarb juice.

Another.—Take one gallon of rhubarb, well bruised, add one and a half gallons of cold water. Let it stand three days, stirring it every day. Then strain it, and to each gallon of the liquid put four pounds

of loaf sugar. Keep it one or two months, or until it seems to have done working, then bottle it.

Another.—The following was published in the *Irish Farmer's Gazette*: "To make one gallon rhubarb wine, take five pounds rhubarb, cut it small, and let it stand in water four days, then bruise the rhubarb, and strain it through a fine sieve or loose towel; add three and a half pounds good soft sugar; boil it three-quarters of an hour; add, when boiling, half pound bruised raisins, the white of an egg, and a little izinglass; work it in a jar with a little yeast. It will keep for ten years, and improve, if well made.

Rhubarb Wine to Destroy Taste for Strong Drinks and Tobacco.—The president of the Farmers' Club, New York, says rhubarb wine is found to have a very powerful effect in destroying the effects of alcoholic drinks. He adds, Nothing is so effective in destroying the taste for both spirits and tobacco as strong acid.

To Make Cherry Wine.—The juice of the sour Kentish pie cherry is used; one gallon of juice to two gallons of water, with three pounds of refined white sugar. If the flavor obtained from the stones is desired, mash the fruit without being careful not to mash the stones, and let it stand one night before pressing.

Peach Wine.—Take nearly ripe fruit, stone it and bruise to a pulp. Put eight pounds of pulp to one quart of water, and let it stand twenty-four hours. Then strain out the juice, and to every gallon add two pounds of sugar. Turn into a cask, and when fermented and become perfectly clear, cork tightly in bottles.

To make pure Wine of Apples.—Take pure cider made from sound ripe apples, as it runs from the press; put sixty pounds of common brown sugar into fifteen gallons of the cider, and let it dissolve; then put the mixture into a clean barrel, and fill the barrel to within two gallons of being full with clean cider. Put the cask in a cool place, leaving the bung out for forty-eight hours; then put in the bung with a small vent, until fermentation wholly ceases, and bung up tight; and in one year the wine will be fit for use. This wine requires no racking; the longer it stands upon the lees, the better it is. Wine from currants can be made in precisely the same manner.

Cider Champagne Wine.—An excellent article may be made by adding three pounds of sugar to each gallon of clarified cider, letting it stand three months to ferment. By bottling the above, and adding to each a small lump of sugar, a new fermentation will be excited. Wire down the corks, and you will soon have, fit for use, proper sparkling cider champagne.

Another.—Take some late apples, well ripe ; press them into cider ; boil it in a copper kettle for about ten minutes ; skim it well while it boils ; then barrel it like common cider, keeping the barrel full. At the end of the winter, before the second fermentation has begun, get enough strong bottles—as strong as possible—large or small—old porter bottles will do as well as any—and bottle all your cider, leaving a small space between the cider and the cork, in a long-necked bottle—at least, two and a half or three inches—tie a good string over the cork, and lay them down on a shelf in a cool cellar.

Cider treated in this way will make a splendid drink in the course of the summer, sparkling like champagne.

Another.—This is from the *American Eclectic Dispensatory*, by Prof. King: Take of good cider twenty-eight gallons ; fourth proof brandy, one gallon ; genuine champagne wine, five gallons ; new milk, one pint ; bitartrate of potassia, half a pound. These are mixed together, allowed to stand for a time, and bottled while fermenting. Wire down the corks.

To Fine or Clarify Wines.—Wines of all kinds, if properly managed, should be always clear enough to bottle off the lees by March, except grape wine, which then rack into a sweet pure cask. First, burn in it a bit of paper, say one to six inches, coated with sulphur for a half barrel cask. As soon as the paper, ignited and hung into the bung hole by a thin wire, is properly burning, the bung is put on tight, so as to impregnate the wood of the cask with the sulphuric acid. In thirty minutes put the wine into the cask, and fill with clean pebble-stones to make the wine come up to the bung hole, and bung up air tight. Then leave it at rest. The cask must be perfectly fast, and not be allowed to move or roll at all until about the first of May, or in a cold cellar the first of June, when it is bottled. If the wine is not perfectly brilliant, (which all wine must be before bottled,) rack it into another cask half full ; stir in well the dissolved izinglass, fill it with all the wine, put on bung slightly, and bottle the third day, when it will be perfectly clear. Always draw from the lees into a clean cask before fining.

Another Way.—“Wines should be bottled on the coming of spring. If not fine enough, draw off a jug and dissolve izinglass in it in the proportion of half an ounce to ten gallons, and then pour back through the bung hole. Let it stand a few weeks longer. Tap the cask above the lees at the bottom. For white wine only, mix with the izinglass a quarter of a pint of milk to each gallon of wine. White of eggs,

beaten with some of the wine—one white to four gallons—makes a good fining.”

Another.—A person of long experience in the wine trade says: The whites of eggs are superior to any other fining. They should be entirely separated from the yelk; beat only so as to separate them, and not to the frothy condition prepared for cake making. Three or four whites to a quarter cask, adding the shells, pulverized fine, and a tablespoonful of fine salt; mix these well together in a gallon or more of the wine. Pour this into the cask, and see that your measure holds back none of the fining; then give it a thorough stirring from the bottom with a stout stick put in at the bung hole. If you have more shells, it will be beneficial to use them, especially if the juice appears to partake of strong vinous acid. The eggs should be fresh, and if the first fining fails, give it a second one, but do not stir from the bottom, or let your stirrer go more than half the depth of the cask; the bung should be left loose, a faucet put in the head of the cask, and after a while, by a sudden turn of the faucet, a little of the lees drawn off for a few times, and at intervals of some days, until it appears bright in a glass. If the process of fining is very tardy, a small quantity of brandy, poured gently in at the bung, and stirred on the surface of the juice, sometimes aids the precipitation of the lees.

To Detect Artificially Colored Wines.—Mr. Blume gives the following simple test: Saturate a piece of bread crumb with the wine to be tested, and place it in a plate full of water. If the wine is artificially colored, the water very soon becomes colored reddish violet; but if the coloring matter is natural, the water after a quarter or half an hour is but very little colored, and a slight opalescence only is perceptible. The test depends upon the difficult solubility of the real coloring matters of wine in water free from tartaric acid.

CORDIALS, SYRUPS, ETC.

Blackberry Cordial.—To three pounds of ripe blackberries add one pound of white sugar; let them stand twelve hours, then press out the juice and strain it; add one-third of good spirits; to every quart add one teaspoonful of finely powdered alspice; It is at once fit for use.

Another.—To one quart of blackberry juice add one pound of white sugar, one tablespoonful of cloves, one of alspice, one of cinnamon, and of nutmeg. Boil all together fifteen minutes; add a wineglass of whiskey, brandy or rum. Bottle while hot, cork tight and seal. This is

almost a specific in diarrhea. It is said that severe cases of dysentery have been cured by it, and that one dose, a wineglassful for an adult, half that quantity for a child, will often cure diarrhea. It can be taken three or four times a day if the case is severe. It is very palatable. No child refuses it.

Another.—To half a bushel of blackberries well mashed add a quarter of a pound of alspice, two ounces of cinnamon, and two ounces of cloves; pulverize well, mix, and boil slowly until properly done; then strain or squeeze the juice through homespun or flannel, and add to each pint of the juice one pound of loaf sugar; boil again for some time; take it off, and, while cooling, add half a gallon of best cognac brandy. Dose for an adult, one gill; for a child, a teaspoonful, or more, according to age. It is a delightful beverage, and an infallible specific for ordinary diseases of the bowels.

Another.—To a gallon of good ripe blackberries add three pounds of cheap clean brown sugar, and a quart of rainwater, scalding hot. Suffer the berries thus treated to stand twelve hours in an earthen crock, and then stew twenty minutes in a porcelain-lined kettle. Squeeze out all the liquid through a close cloth strainer, add to it a quart of Jamaica spirits, a quarter of a pound of whole alspice, and an ounce of essence of cloves. Bottle when cold. It is said that if a spoonful of this is used in a tumbler of water as a common beverage during all the warm weather, it will tend to prevent cholera infantum and summer complaint among children, diarrhea and dysentery among adults.

Blackberry Root Cordial.—An experienced physician contributes the following:

Take of blackberry root bark, pounded fine, two ounces; pure ginger root, fine, one-half ounce. Place them in a covered vessel, and pour upon them one-half pint of whisky, and the same of water. Macerate fourteen days. Then strain, adding water so as to make one pint of clear liquor. Then add four ounces of refined sugar, and dissolve.

The physiological effects of this cordial, in moderate doses, are those of a tonic, stimulant, and astringent, invigorating the vital energies generally, peculiarly fitting it to the treatment of a certain class of diseases. Such are cases of chronic diarrhea and dysentery, general debility, with impaired digestive functions.

We can safely testify that we have not unfrequently seen confirmed cases of chronic diarrhea and dysentery yield to this cordial, after

other more potent remedies (so called) had failed, such as calomel, blue pill, sugar of lead, &c.

The dose is one tablespoonful, repeated according to circumstances, or from three to six times daily. The time of digging the root is immaterial.

Compound Peach Bark Cordial.—Recommended by Dr. A. F. Pattee, of Amesbury, Mass.—Take peach bark from the young sprouts, three ounces; blackberry root bark two ounces; redberry bark one ounce: ginger root one half ounce; place the whole in a covered vessel, pour upon them one and a half pints of boiling water, let it stand and steep two hours, then strain, and add whiskey one-half pint, refined sugar one-half pound. Use and dose the same as the blackberry root cordial.

Elderberry Syrup.—Take the juice of elderberry one quart; boil it to one pint; strain and add two pounds of double refined sugar; again place it over the fire, so soon as it shall have boiled, remove it from the fire, and when cold, bottle it for use, taking care to have it well covered. With a less quantity of sugar there will be danger of its becoming mouldy. As a gentle purgative, this syrup is an excellent medicine, of very pleasant taste, and is peculiarly serviceable to children who are not easily induced to take common medicine. The dose for an adult is a wineglassful.

Raspberry Royal.—We find the following in a newspaper:—During the hot summer's solstice, when appetite fails, and universal lassitude lays hold of the system, do not rush headlong to pulmonic pills, phlebotomy and apothecary practices, but seek to put on muscle with some simple renovator of your own manufacture. Nothing better, I have learned to think, for the purpose, than Raspberry Royal, prepared thus:

Four quarts of sound ripe berries, placed in a stone jar—pour over them a quart of the best cider or wine vinegar—none of the villianous chemical acid abominations will answer the purpose—add a pound of fine white sugar, and beat the berries to a batter with a wooden pestle. Then strain dry as nearly as may be, through a strong linen cloth, and add to the syrup thus obtained a pint of first class pale brandy. Bottle and use two tablespoonfuls in a half pint tumbler of water.

Blackberry Brandy.—The blackberry has, it is said, been found by the surgeons of the army to be the only sure and sovereign remedy for diarrhea, if taken in due time, even after all other medicines hitherto known have failed. Only the juice of the berry should be used,

which may be preserved in the form of jelly, or wine, or blackberry brandy, which, according to the most approved receipts is prepared thus :

To two quarts of blackberry juice, put one and a half pounds of white sugar, one and a half ounces of cinnamon, half an ounce of nutmegs, quarter of an ounce of cloves, one ounce alspice; let it simmer but for a few moments, and, when cool, add one pint of brandy.

To Make Syllabub.—One quart of rich milk, half a pint of wine, six ounces of loaf sugar. Put the sugar and wine in a bowl. Have the milk lukewarm, and put it in a pitcher; when the sugar is dissolved pour the milk in with the wine. Hold the pitcher sufficiently high to raise a froth on the milk in the bowl. Grate nutmeg over the top.

Cherry Water.—We extract from *Miss Johnson's Cottages of the Alps* as follows :—We one day saw a decanter upon a table filled with what we supposed to be water, as it was colorless, and we had never seen any stronger liquid without some slight tinge of yellow, red or purple. Being thirsty we thought to help ourselves, and took a generous draught, which in an instant had pervaded every drop of blood in our veins. It was *cherry water*, but surely deserves a more significant appellation. It is made by crushing fresh cherries, and **pounding** and pressing them, as the juice is expressed from grapes. They are then kept slightly warm till fermentation takes place, which sometimes happens the second, and often not till the fourth week. The tub remains covered, and the pulp is stirred every two days. It can then remain a long time without injury, or be immediately distilled like brandy. So long as it runs clear, it is of the right taste and consistency, when the liquid is thick, it is put back with the pulp in the still. To prevent its taking fire before it begins to boil, it is stirred violently. Like good wine, it improves with age. An imitation sometimes made of plums, but can easily be detected by mixing with a few drops of water, when it looks murky, and if rubbed upon the hand has a different flavor.

ADULTERATION OF LIQUORS.

An unpleasant development was recently made in Cincinnati, concerning Catawba brandy. Responsible vinters declared that the pure article would cost from five to eight dollars a gallon, adding that there was no genuine article of the kind in the market—the quality generally sold consisting of pomace, whiskey, and fusel oil.

Dr. L. G. Miller, Inspector of Liquors for Wayne Co., Michigan, says: Out of three hundred and eighty cases of whiskey, inspected in and near Detroit, he only found two pure. He did not find a drop of pure French brandy. Of one hundred and four samples of gin, he found but twenty-nine genuine. Out of thirty-two samples of Jamaica rum he found but nine genuine. The Irish and Scotch whiskeys were pure generally. Of Port wine, the genuine article is seldom found.

In order that persons may see what kind of stuffs they drink, we insert the following list of recipes by which adulterated liquors are manufactured, found in possession of a liquor manufacturer:

To forty gallons whiskey, and in that proportion, more or less, add $1\frac{1}{2}$ lbs. unslaked lime, $\frac{3}{4}$ lb. alum, 1 pint spirits nitre; stand twenty-four hours and draw off.

No. 1. For making Common Brandy.—To 40 gallons whiskey prepared as above, 8 ounces dulc. nitre, 1 gallon alcohol, 1 gallon best brandy, add 4 lbs. loaf sugar; dissolve and color with burnt sugar.

No. 2. For Making Best Brandy.—To 40 galls. whiskey, or pure spirits, add 4 galls. best brandy, 5 oz. tinc. kino, 6 oz. spirits nitre; stand 12 hours.

No. 3. For Making Domestic Gin.—To 40 galls. whiskey, 8 oz. dulc. nitre, 2 oz. oil juniper, 1 oz. anniseed, add 4 lbs. loaf sugar, dissolved in 1 qt. alcohol.

No. 4. For Making New England Rum.—To 40 galls. whiskey, add 1 gall. New England Rum, $\frac{1}{3}$ oz. belgoïn root, 3 oz. orris root, 1 oz. dulc. nitre, $\frac{1}{2}$ oz. alspice.

No. 5. To Make St. Croix Rum.—To 40 galls. whiskey add 4 galls. St. Croix Rum, $1\frac{1}{2}$ oz. oil carraway, 4 oz. spirits nitre, $\frac{1}{2}$ oz. tinc. kino; stand 12 hours.

No. 6. Jamaica Rum.—To 40 galls. whiskey, add 5 galls. Jamaica rum, $1\frac{1}{2}$ oz. tinc. kino, 4 oz. spirits nitre.

No. 7. Holland Gin.—To 40 galls. whiskey, add $4\frac{1}{2}$ galls. Holland gin, $1\frac{1}{2}$ oz. oil juniper, 6 oz. spirits nitre; oil anniseed to suit the taste; stand 12 hours.

No. 8. Madeira Wine.—To 25 galls. well worked cider, add 1 lb. cream tartar, 1 qt. milk; stand 12 hours, and drain off, and to every 5 galls. add 1 gall. whiskey.

No. 9. Port Wine.—To 5 galls. of the above, add $\frac{1}{4}$ lb. logwood, $\frac{1}{2}$ oz. gum kino, boiled with $\frac{1}{2}$ gall. cider, down to 1 pint; strain and put it in.

No. 10. For Various Wines.—To 28 galls. good cider add 1 gail.

brandy, 1 lb. cream tartar, 5 galls. of the wine you wish to make to flavor it, with 1 pt. milk to settle it; stand 24 hours and draw off.

No. 11. Peach Brandy.—To every 10 galls. brandy made by recipe No. 1, add 4 lbs. dried peaches, boiled and strained.

No. 12. To Prepare Tinc. Kino.—To 1 pt. alcohol, add 1 oz. gum kino.

No. 13. Cherry Brandy.—To every 10 galls. made by recipe No. 1, add 3 qts. wild black cherries, beat up, stones and all, and strain.

No. 14. Raspberry Brandy.—To every 10 galls. brandy, made by recipe No. 1, add the juice of 5 qts. raspberries.

No. 15. Monongahela Whiskey.—To 40 galls. common whiskey add 4 lbs. dried peaches, 2 oz. spirits nitre, 5 lbs. sugar, 2 qts. rye, burned and ground like coffee, $\frac{1}{2}$ lb. alspice, $\frac{1}{2}$ lb. cinnamon, $\frac{1}{2}$ lb. cloves; put in the ingredients, and after standing 4 days, draw off and strain if necessary.

No. 16. Coloring for Port Wine.—For a prime article, substitute for 28 galls. 3 lbs. rattany root.

No. 17. Blackberry Wine.—To 30 galls. whiskey, add 7 galls. soft water, 60 qts. blackberries, 4 oz. tinc. kino, 5 lbs. loaf sugar, 1 gall. good brandy; stand one week.

No. 18. Currant Wine.—To 30 galls. whiskey, add 7 galls. soft water, 6 lbs. loaf sugar, 5 oz. tinc. kino, 1 gall. good port wine, and the juice of 30 qts. good ripe currants.

No. 19. Coloring Matter for Liquors.—Take 2 lbs. crushed sugar, put in a kettle that holds 4 to 6 qts., add $\frac{1}{2}$ tumblerful of water, boil until it is black, then take off and stir as you pour in water to cool it.

No. 20. Bead for Liquors.—To $\frac{1}{2}$ oz. sulphuric acid, add $\frac{1}{2}$ sweet oil, mix together in a glass bottle; 1 drop is sufficient for 1 qt., and in that proportion for any other quantity.

No. 21. Domestic Rum.—To 40 galls. whiskey add 8 oz. dulc. nitre, 1 oz. oil carraway, 4 oz. tinc. kino, 4 lbs. loaf sugar, dissolved in 1 qt. alcohol; stand ten hours.

No. 22. Silver Top Drink.—One qt. water, 3 lbs. loaf sugar, 1 teaspoonful oil lemon, 1 tablespoonful flour, with white of 5 eggs, well beaten up, then mix the above well together, then divide it, and add 4 oz. carb. soda in one half, and 3 oz. tartaric in the other half, then bottle for use.

The rascal said that some of the foregoing receipts cost him one hundred dollars.

DOMESTIC DYES.

COLORS may be divided into *simple* and *compound*. Blue, red and yellow are simple colors. Purple formed by mixing red and blue; green by mixing blue and yellow; orange by mixing red and yellow: are compound colors. In dyeing, a *ground* is sometimes given of one color with the intention of applying another upon it, and thus producing a compound color. It is important that the water used in dyeing should always be pure. Rain water is best.

Wool, previous to being dyed, whether in the fleece, yarn, or cloth, requires to be cleansed by scouring.

Silk to be dyed must be prepared with a cold solution of alum; if used hot the lustre is apt to be impaired. Silks when dyed must be dried quickly.

Cotton, before it is dyed, should be well scoured by an alkaline lye, and afterward washed in a stream of water, and dried. Aluming and galling are the next preliminary processes.

To Dye Black.—To one pound of cotton goods, use one-half ounce blue vitriol, and two ounces extract of logwood. Take an iron kettle containing water enough to cover what you wish to color, bring the water to a scalding heat, put in the goods for a few minutes, then remove them from the kettle, drain, and add the blue vitriol. When dissolved, and the water carefully skimmed, put in the goods, let them remain thirty minutes, with a scalding heat, occasionally airing them; then take out and rinse in rain water. The vitriol water should next be put in a separate kettle, and the extract of logwood dissolved in a sufficient quantity of water, skimmed, and brought to a scalding heat; then put in the goods, keep the dye at the same heat, and let them remain thirty minutes; air frequently; then take out and drain. Pour the vitriol water into the dye, then put in the goods, letting them remain fifteen minutes. Cleanse well.

One ounce extract of logwood to half an ounce blue vitriol is also recommended, and for dying silk and wool as well as cotton.

To Dye Wool Black.—Boil the wool for half an hour in a liquor in which two ounces of bichromate of potash, and one pound of fustic is used for every eight pounds of wool. Take it out and air it, then boil it for a full hour in logwood liquor containing the extract of three pounds of logwood chips. After this it must be thoroughly washed. If it has a gray or slaty appearance, it is a sign that it has not received a sufficient quantity of logwood; if it is rusty and brown, it is

a sign that the logwood liquor was too strong. Remove a portion of the logwood by rinsing the wool in very delicate sulphuric acid, and wash well in warm water.

Another Black Dye for Wool.—It is boiled for two hours in a decoction of nutgalls, and afterward kept for two hours in a bath of logwood and sulphate of iron, at a scalding but not a boiling heat. During the operation it must be frequently exposed to the air. The common proportions are five parts of galls, five of sulphate of iron, and thirty of logwood, for every hundred of cloth.

Silk is dyed black in the same manner.

Cloth, before it receives a black color, is usually dyed blue, to render the black more agreeable. If the cloth be coarse, sometimes a brown from walnut peels is substituted.

Black Dye for Cotton and Linen.—Cotton and linen are not easily dyed a full black. The cloth dyed blue is steeped for twenty-four hours in a decoction of nutgalls, and then put into a bath prepared of acetate of iron, wrung out and dried, and the process is continued till the color is deep enough.

Another Black Dye.—For three pounds of wool or goods take one pound sulph. copper, boil it with the goods half an hour, take out the goods, wash it well in three or four waters, put it in the kettle again and add one pound extract logwood and two ounces fustic; boil twenty minutes, and it is done.

To Dye Saxon Blue—Exceedingly Beautiful.—One part of indigo is dissolved in four parts of concentrated sulphuric acid; to the solution is added one part of dry carbonate of potash, and then this is diluted with eight times its weight of water. The cloth must be boiled in a solution containing five parts of alum and three of tartar for every thirty-two parts of cloth. It is then thrown into a water bath containing a greater or smaller portion of the diluted sulphate of indigo, according to the shade which the cloth is intended to receive. In this bath it must boil till it has acquired the desired color. This is for coloring wool and silk.

Another way is to boil the article in alum, and then dip in a strong solution of chemic blue.

Another Blue Dye for Wool or Cloth.—Mix and boil one hour in brass or copper one and a half ounce cream of tartar and two and a half ounces alum for a pound of goods. With this, color to the shade you desire, add sufficient warm rain water to cover the goods. Put the goods in and boil a short time in a brass or copper kettle, stirring constantly. Then take the goods out, rinse in clean cold water, and

hang up to dry. An hour by this method, is sufficient to produce a very fine blue.

To Dye Wool a very Dark Blue.—One ounce of the prussiate of potash, half an ounce of the sulphate of iron, one gill of the muriate of tin, and the extract of two pounds of chip logwood to five pounds of wool. Boil all together for three quarters of an hour.

Another Blue Dye.—Take one pound of oil of vitriol and put one ounce of the best indigo and a small lump of pearlash; it will ferment. When this is done, cork it tight, and it is fit for use. You can graduate the color to your fancy, by adding more or less to the water into which you immerse the goods.

Another.—For three pounds of goods, take three ounces chemic, boil it with the goods five minutes, and it is done. Or, equal quantities of indigo and madder makes a pretty blue.

To Dye Linen and Muslin Blue.—Wash well to remove dressing, and dry; then dip in a strong solution of sulphate of indigo—partly saturated with potash—and hang up. Dry a piece to see if the color is deep enough, if not, dip again.

Cotton and linen are dyed blue by a solution of one part indigo, one part green sulphate of iron, and two parts of quicklime.

To Dye Silk Blue.—Silk is dyed light blue by a ferment of six parts of indigo, six of potash, and one of madder. To dye it dark blue, it must previously receive a ground color; *archiel* is used for this purpose.

Blue Color for Stamping.—Take one ounce of Prussian blue, one pound oxalic acid and white sugar. By having a greater or less quantity of water mixed with the blue and thickened with gum, dark and light shades will be produced, as may be desired. Remember that oxalic acid is a poison when tasted.

To Dye Yellow.—Weld, fustic, quercitron bark and annatto are the principal coloring matters for dyeing yellow. The yellow dyed by fustic is more permanent, but not so beautiful as that given by weld or quercitron. Weld and quercitron give nearly the same color, and the latter is cheapest.

To Dye Wool Yellow.—Boil it for an hour or more with about one sixth its weight of alum; then, without rinsing it, plunge it into a bath of warm water containing as much quercitron bark as equals the weight of alum employed as a mordant. The cloth is to be repeatedly turned in the boiling liquid, till it has acquired the intended color. To deepen the color, a quantity of clean, powdered chalk, equal to the hundredth part of the weight of the cloth, is to be stirred in, and the

boiling to be continued for eight or ten minutes longer. For very bright golden yellows the oxide of tin must be used as a mordant. If a greenish yellow is wished for, some tartar may be added to the dye. The addition of a little cochineal will give an orange.

To Dye Silk Yellow.—Take weld or quercitron bark. The proportion should be from one to two parts of bark to twelve parts of silk, according to the shade wanted. The bark, tied up in a bag, should be put into the water cold, and the temperature then raised to one hundred degrees, when the silk, previously alumed, should be dipped in, and continued till it has acquired the proper color. Chalk or pearl-ash will deepen the tint.

To Dye Linen and Cotton Yellow.—Use a mordant of acetate of alumina, prepared by dissolving one part of acetate of lead and three parts alum in a sufficient quantity of water. The cloth is to be soaked for two hours in this solution, heated to one hundred degrees, wrung out and dried, and the soaking and drying may be repeated; it is then barely wetted with lime-water, and dried. If the color is wished to be very bright and durable, the soaking and wetting with lime-water should be repeated several times; the lime makes the dye more permanent. The dyeing bath is prepared by putting quercitron bark into cold water with the cloth, then bringing this gradually to a boiling heat; but after this the cloth must only remain a few minutes, lest the color should acquire a shade of brown.

Nankeen yellow is dyed by a solution of red sulphate of iron, which is combined with the cloth by carbonate of potash.

Another way to Dye Yellow.—Take three pounds of turmeric or of any of the coloring materials named above, and one pound alum for four pounds wool or other goods, and put all into an earthen vessel, then pour on hot water sufficient to cover the goods, keep them warm over night, and boil half an hour or so in the morning in brass, after which take out, rinse in clean cold water, and hang to dry.

Another.—For three pounds goods, take half a pound turmeric, boil five minutes, then add three ounces alum, half ounce muriate of tin, put in the goods, boil ten minutes, and it is done. Or,

Cut potato tops when in flower, and express the juice; steep articles in this for forty-eight hours.

To Dye Wool Red.—The coloring matters chiefly employed for dyeing red are, kermes, cochineal, archil, madder, carthamus, Brazil wood, lac, and logwood.

Wool may be dyed red by any of these, according to the shade required. Cochineal gives the brightest crimson: the best mordant is

chloride of tin. Scarlet is a compound of crimson and yellow; and, to produce a bright scarlet, the cloth must first be dyed yellow by means of any of the yellow dyes, and then plunged into a bath of cochineal with tartar and chloride of tin. For common crimsons, alum is used as a mordant, and the dye cochineal; or, if pale crimson, a little madder may be added to some cochineal.

The most permanent color is obtained from madder. Analine and cochineal reds are more beautiful, but they do not stand washing with soap and exposure to sunlight like madder red.

To Dye Silk Red.—Silk is dyed red with cochineal, carthamus, or Brazil wood; madder is not bright enough. Archil is used when the color is to be lilac. Silk cannot be dyed a full scarlet; but a color approaching to it may be given by first impregnating the silk with murio-sulphate of tin, and afterward dyeing it in a bath composed of four parts cochineal and four of quercitron. Crimson may be given by cochineal alone; and poppy and rose by an alkaline solution of carthamus, to which lemon juice has been added.

To Dye Cotton and Linen Red.—Use madder. The color is called Turkey red. The cloth is first impregnated with oil, then with galls, and, lastly, with alum; it is then boiled for an hour in a decoction of madder, and plunged into a lye of soda to heighten the color. The application of the mordant is difficult, but the color produced is permanent. Cotton may be dyed scarlet by means of murio-sulphate of tin, cochineal and quercitron bark, but the color is fading.

To Dye Madder Red.—Boil the cloth in a weak solution of pearl-ash—an ounce to a gallon of water—wash, dry, and then steep in a decoction of bruised nutgalls. After dyeing, it is to be steeped twice in warm alum water, then dried and boiled in a decoction made of three-quarters of a pound of madder to every pound of the article. It should then be taken out and dried, and steeped in a second bath in the same manner. When dyed, the articles should be washed in warm soap and water, to remove a dun-colored matter given out by the madder.

To Dye Cochineal Red.—For each pound of goods, take one ounce of cochineal, one ounce muriate of tin, and a small portion of cream tartar, put it in the water with the goods, boil ten minutes. The color can be varied by using more or less muriate of tin.

To Dye Crimson.—Take two ounces of gum arabic, and for every pound of goods, two ounces of cochineal, and one third of an ounce of agaric, and one ounce of turmeric; mix, and put into your copper, and when they begin to boil, and the gum is dissolved, put your goods in;

let it boil two hours, and then it is dyed. Wash it slightly, and dry it in the shade. This is excellent for silk, but should be tested before relied on for other goods. See above.

To Dye Scarlet.—Solution of tin, four ounces, cochineal and cream of tartar, of each three ounces for three pounds of goods. Powder the cochineal and rub through a bag into sufficient tepid water to cover the goods. While warm add the cream of tartar and let them simmer before putting in the solution of tin. Wet your goods in clean soft water, then put them in the dye and let them steep till colored enough. Do not wash the goods until after they are dry. This is said to make an excellent color. See above.

To Dye Pink.—Steep two ounces of cochineal in warm water until the color is thoroughly extracted, which will take a couple of hours or so, then add half an ounce cream of tartar, and after wetting the goods in clean soft water and wringing them, put them in the dye, and let them remain in it a few minutes after bringing it to a scalding heat. This will color three pounds of goods. The shade of color can be regulated by using more or less cochineal.

To Pink Silk Stockings.—Some clean soapsuds should be colored according to the taste of the manipulator by means of "pink saucer," and the stockings, after having been dipped into the suds, should be placed on a clean cloth in the air to dry. It is a good plan to rub them with flannel before they are quite dry, taking care that the rubbing be in one direction only. During this operation, it is as well to let them lie upon flannel until dry.

To Color Purple.—Purple is blue and red, and comprises lilac and violet, which are different shades of it. Wool is first dyed blue, and then scarlet, in the usual manner. By mixing cochineal with sulphate of indigo, the process may be performed at once. Silk is dyed first crimson by means of cochineal, and then dipped into the indigo bath. Cotton and linen are first dyed blue, then galled, and dyed by oxide of iron.

Another way to Color Purple.—One bushel of purslane, ten ounces of logwood, five ounces of alum, to four pounds of yarn or goods. Boil the purslane till the strength is out, then dip the articles in it till they are dyed. Scald twenty or thirty minutes. This is said not to spot or fade.

To Dye a Lilac Color.—The chloride of gold produces a beautiful lilac color on silk. Wool and other goods are colored lilac by boiling a short time in cudbear.

To Dye Orange.—Orange, consisting of red and yellow, is produced by a scarlet or a crimson, and then dyeing yellow. Or,

Take four ounces fustic, one-half ounce cochineal, one-eighth ounce cream of tartar, one-half ounce muriate tin, one ounce alum for three pounds of goods; boil ten minutes, and it is done. Or dye first with a red dye and then with a yellow. Carthamus gives to silk an orange.

Dove and Slate Colors.—Take of copperas, a teaspoonful, and of black tea, a teacupful, add sufficient water to cover the goods, and boil in an iron kettle. You can get any shade you want by adding more or less water.

To Dye Buff.—Take potash, two ounces, annatto, one ounce. Boil in three quarts soft water, stirring constantly. Put in the goods while boiling and stirring, let them boil five minutes, then take them out and put them instantly in cold water. Take them out of this immediately and without wringing hang them to dry. Before perfectly dry take them down and fold them.

To Dye Brown.—Boil half an hour with quarter of a pound of alum and two ounces cream of tartar for each pound of wool or goods. Then soak over night, red powder, half a pound, fustic, quarter of a pound, and logwood, two ounces, in warm rain water sufficient to cover the goods. Now take the goods out of the alum water, put them in the other and boil half an hour. To make a dark brown add a table-spoonful of copperas.

Another Brown Dye.—For three pounds, take one pound camwood, half pound fustic, half pound extract logwood, boil twenty minutes with the goods, then add half pound sulph. copper, and boil twenty-five minutes, and it is done. Or steep in an infusion of green walnut peels, or the root of the walnut tree, birch bark, sumach, &c., separately or in combination.

Grays, Drabs and Browns.—These are produced, of various shades, by dyeing with oxide of iron, then yellow with quercitron or sumach. A good drab is given by fustic, when the mordant is oxide of iron.

Butternut Color.—Place alternate layers of butternut bark, (the rough portions being removed,) and wool, yarn or cloth, in any convenient vessel, as a large trough, fill with water and place a weight on the top. Every day spread the goods in the sun to air. This will set the dye. Or place the bark and yarn in alternate layers in an iron kettle, filled with water, and warm over the fire two or three times a day, airing in the sun each day. The latter method produces the darkest color.

Green.—Green, being composed of blue and yellow, the wool, silk,

or linen is first dyed blue, then yellow, by any of the processes described above. When sulphate of indigo is used, all the ingredients are mixed together, which produces Saxon green. Other shades, as pea green, grass green, sea green, &c., are produced by employing various proportions of yellow and blue dyes, according to the experience and taste of the dyer. Or,

For three pounds of goods, take one pound fustic, boil five minutes, then add three ounces of alum and two ounces chemic, put in the goods, boil five minutes, and it is done. You can vary the color by using more or less chemic. Or,

Boil the article in alum, and then in a solution of indigo mixed with any of the yellow dyes, until the proper color is obtained.

Olive.—Olive is obtained by adding blue to orange, or by a blue, yellow, and madder bath.

Cinnamon Color.—This is produced by dyeing with slight madder color before orange. Silk receives this color by logwood, Brazil wood, and fustic, mixed; cotton and linen by weld and madder.

Salmon Color.—Dissolve quarter of a pound each of soap and annatto in sufficient water to cover one pound of yarn or goods. Rinse the goods in warm rain water and then boil them in the mixture half an hour. More or less annatto may be used according to the shade wanted.

Coloring Feathers.—Feathers may be dyed any shade of *blue* by indigo, or they may be dipped in the dye for silk. Dye *black* the same as cloth. For *yellow* steep in a solution of acetate of allumina, then dip in a bath of weld or turmeric. Feathers may also be dyed yellow by boiling them in a strong decoction of quercitron and a few drops of the muriate of tin. To dye *red* dip them in a solution of acetate of allumina, then in a decoction of Brazil wood, boiling hot. This will give a deep color. If *crimson* is wanted, after coloring red as directed, then dip them in a bath of cudbear.

Feathers may be dyed a *scarlet* color by boiling them in a clean tin vessel with some water, ground cochineal, a little cream of tartar, and a few drops of the muriate of tin. Put these ingredients into the vessel, and, when boiling, place the feathers therein, and boil for fifteen minutes; then take them out and wash them in cold water. This color is permanent, and one ounce of cochineal will dye one pound of feathers, which should be washed in soap before being dyed. They are dyed *pink* or *rose color* by lemon juice and safflower.

To Color Kid Gloves Purple.—Sew up the tops to prevent staining the insides, then sponge or brush the outsides twice with two ounces

logwood and one ounce roche alum boiled in one quart of soft water till more than half is evaporated, strained and cooled before using. Rub off the loose dye with a piece of flannel, and then with a sponge give a coating of the white of egg beat to a froth. The stain on the hands can be washed off with a little vinegar.

The Warmth of Colors.—Place upon the surface of snow, as upon the window sill, in bright daylight or sunshine, pieces of cloth of the same size and quality, but of different colors, black, blue, green, yellow, and white; the black cloth will soon melt the snow beneath it, and sink downwards; next the blue, and then the green; the yellow but slightly; but the snow beneath the white cloth will be the same as at first.

To Color Ivory.—Boil the bracelet or other article for some time in a decoction of logwood and then steep it in a solution of acetate of iron, and it will be a beautiful deep black. To stain ivory blue, it should be immersed for some time in a dilute solution of sulphate of indigo, partly saturated with potash. Green—Boil it in a solution of verdigris, in vinegar. Red requires the ivory to be dipped in a dyer's tin mordant, and then to be put into a hot decoction of Brazil wood (half a pound to a gallon of water) or cochineal.

CLOTHING, FURS, BOOTS AND SHOES.

DRESS.

NEVER be above your calling, nor be afraid to appear dressed in accordance with the business you are performing. Richness of dress contributes nothing to a man of sense but rather makes his sense inquired into. The more the body is set off, the less the mind appears. The plainer the dress, with greater lustre does beauty appear. Virtue is the greatest ornament, and good sense the best equipage. Female loveliness never appears to so great an advantage as when set off by simplicity of dress. No artist ever paints angels with towering feathers and grand jewelry; and our dear human angels, if they would make good their title to that name, should carefully avoid tawdry ornaments, which properly belong to Indian squaws and African princes. A vulgar taste is not redeemed by gold or diamonds. If a woman wishes to be a general favorite with her female acquaintances, she has only to permit them to outdress her. The more intent they are on

gewgaws and decorations, the more profound will be the respect for her who totally disregards them. Let any one look amongst his or her friends and see if she who is most beloved is not one of less pretension to fancy than those around her.

In the families of many of the nobility and gentry of England, possessing an annual income which itself would be an ample fortune, there is greater economy of dress and more simplicity in the furnishing of the dwelling, than there is in many of the houses of our citizens, who are barely able to supply the daily wants of their families by the closest attention to their business. They are generally clothed in good substantial stuffs, and a display of fine clothing is reserved for great occasions. The furniture of the mansions, instead of being turned out of doors every few years for new and more fashionable styles, is the same which the ancestors of the families for several generations have possessed; substantial and in excellent preservation, but plain and without any pretensions of elegance.

Dress may be neat without being extravagant or foolish. We are almost inclined to think that every person, and especially all young persons, should be encouraged and expected to dress themselves with some degree of fresh care during the after part of each day. It may cost a little time (it certainly should not be allowed to cost much,) but it will be apt to increase a person's self respect and that comfortable feeling of being allied and equal to the better part of the social world, which is so desirable for all, and especially for the young. Not long since, a lady whose ideas were thought by many to be above her circumstances, would insist on all her children dressing for the afternoon neatly though plainly, but never remaining in their morning attire. To wash, to arrange the hair, and to be always dressed in the afternoon, not for company but for home life, became a habit of all the young people of that house from childhood, not without some remarks from less painstaking neighbors. At last, one of the children, a bright, but rather self-willed girl, remarked, "I think we all feel so much more inclined to be orderly and good when we are dressed for the afternoon." This remark, made casually to the mother, was, she said, an abundant reward for all the extra trouble and care of the arrangement.

It is not expensive, but rather economical than otherwise, to pay this sort of attention to dress. A little extra washing which it may cost is nothing to what is saved by the habitual carefulness not to soil one's clothes. The sloven is the most extravagant, generally speaking, of any one in dress. So also the time that it may take is noth-

ing, compared to the habit of order, of system, and of having time for everything. It promotes self respect and pleasant, social feelings. The man, woman or child, who feels habitually worse dressed than near neighbors, will be apt to shrink from society and behave awkwardly in it. This will make others shrink from them, and produce a sort of warfare and antagonism most undesirable and sure to check the flow of those benevolent and social feelings which are the source of the purest and best earthly joys, and much of all our usefulness. For all this a person must have no thought of care or pride of where-withal they are clothed while in company.

There are some would-be philosophers who can not see the reasonableness of all this. Let them watch the effect which the Sunday attire has, especially upon the working portion of society, when parents and children all have time and dress for the Sabbath school, the church or the private walk, or the family fireside. Does not all this produce greater mutual respect upon the members of the same family, among neighbors and friends, greater self respect in nearly all and a quiet contentment and enjoyment of existence, most of all things conducive to order and improvement? Let those families who neglect all such habits be observed, and they will almost uniformly be found disorderly and wasteful of far more than all the cost of attending to such matters.

We have known of authors who have found it necessary to dress before writing their best things, of ministers who must put on a clean shirt in order to write as well as deliver a good sermon, and of orators who felt all the more able to command their audiences for being neatly and exactly dressed. No doubt there are many exceptions to all this. But those who have much to do with public life will have found that success, while not to be attained by fine or expensive clothing of a shiny newness, is yet very greatly assisted by a scrupulous neatness, and all that care and cleanliness which makes and assists a proper self respect.

Lavater, the man who, long before the birth of phrenology wrote a clever book on physiognomy, gives a good opinion of people who are fond of dressing well, and throws something more than suspicion on ladies who are careless of their apparel. He says: Young women who neglect their toilette indicate in this very particular a disregard of order, a deficiency in taste, and the qualities which inspire love.

HOW YOUNG LADIES CAN DRESS WELL ON A LIMITED ALLOWANCE.

Never buy conspicuous articles of dress, or colors which are not likely to harmonize generally with others. Though brilliant colors may be arranged so as to look very beautiful in dress, you will find it wiser to select quiet shades which will never jar with each other. Your dress need not, however, be grim-looking on this account, as a little exercise of taste will show you how to relieve it—by a tiny knot of bright ribbon, a pretty little tuft of gay colored feathers in your black or gray hat, or such like pleasing reliefs.

Do not spend money on evanescent fashions, or in the various et-ceteras which run away with so many young ladies' pocket money. Many articles of dress are very graceful and pretty where a girl has money to spend on what will probably be out of fashion next month, or too much run upon to be any longer lady-like. I allude to such things as expensive neck scarfs, fanciful patterns of collars and cuffs, especially lace ones, elaborate bed-room slippers, &c. Your dress need never be unfashionable, but you should not attempt to make yourself conspicuously fashionable.

Try to have a system in your dress, or what I may almost call a style of your own, modified to some extent by the fashion of the day. I have a friend who always makes a rule of wearing plain skirts, even though others are generally being trimmed. I merely mention this as an instance of what I mean. Far from being marked for dressing poorly, the young lady in question is generally admired for her "simple but *distingue*" style of dress. Be careful to pay for everything when you buy it.

INFLUENCE OF COLORS UPON THE COMPLEXION.

Any colored objects, as bonnet trimmings or draperies, in the vicinity of the countenance, change its color; but clearly to trace that change we must know what the cast of complexion is. This varies infinitely, but we recognize two general sorts, light and dark, or *blonde* and *brunette*. In the blondes or fair-complexioned the color of the hair is a mixture of red, yellow, and brown, resulting in a pale orange brown. The skin is lighter, containing little orange, but with variable tinges of light red. The blue eye of the blonde is complementary to the orange of the hair. In brunettes the hair is black, and the skin dark, or of orange tint. The red of the brunette is deeper or less rosy than that of the blonde. Now the same colors affect these

two styles of complexion very differently. A green setting in bonnet or dress throws its complement of red upon the face. If the complexion be pale and deficient in ruddy freshness, or admits of having its rose-tint a little heightened, the green will improve it, though it should be delicate in order to preserve harmony of tone. But green changes the orange hue of the brunette into a disagreeable brick red. If any green at all be used, in such case it should be dark. For the orange complexion of brunette the best color is yellow. Its complementary, violet, neutralized the yellow of the orange and leaves the red, thus increasing the freshness of the complexion. If the skin be more yellow than orange, the complementary, violet, falling upon it, changes it to a dull pallid white. Blue imparts its complementary, orange, which improves the yellow hair of the blonde, and enriches white complexions and light flesh tints. Blue is therefore the standard color for a blonde, as yellow is for a brunette. But blue injures the brunette by deepening the orange, which was before too deep. Violet yellows the skin, and is inadmissible except where its tone is so deep as to whiten the complexion by contrast. Rose-red, by throwing green upon the complexion, impairs its freshness. Red is objectionable, unless it be sufficiently dark to whiten the face by contrast of tone. Orange makes light complexions blue, yellow ones green, and whitens the brunette. White, if without lustre, has a pleasant effect with light complexions; but dark or bad complexions are made worse by its strong contrast. Fluted laces are not liable to this objection, for they reflect the light in such a way as to produce the same effect as gray. Black adjacent to the countenance makes it lighter. For the above excellent hints we are indebted to *Youman's Hand Book of Household Science*.

HOW TO DRESS FOR A PHOTOGRAPH.

A lady or gentleman, having made up her or his mind to be photographed, naturally considers, in the first place, how to be dressed so as to show off to the best advantage. This is by no means such an important matter as many might imagine. Let me offer a few words of advice touching dress. Orange color, for certain optical reasons, is, photographically, black. Blue is white; other shades or tones of color are proportionately darker or lighter as they contain more or less of these colors. The progressive scale of photographic color commences with the lightest. The order stands thus: white, light-blue, violet, pink, mauve, dark-blue, lemon, blue-green, leather-brown, drab,

cerise, magenta, yellow green, dark-brown, purple, red, amber, morone, orange, dead black. Complexion has to be much considered in connection with dress. Blondes can wear much lighter colors than brunettes; the latter always present better pictures in dark dresses, but neither look well in positive white. Violent contrasts of color should be especially guarded against. In photography brunettes possess a great advantage over their fairer sisters. The lovely golden tresses lose all their transparent brilliancy, and are represented black, whilst the "bonnie blue e'e," theme of rapture to the poet, is misery to the photographer, for it is put entirely out. The simplest and most effective way of removing the yellow color from the hair, is to powder it nearly white; it is thus brought to about the same photographic tint as in nature. The same rule, of course, applies to complexions. A freckle quite invisible at a short distance is, on account of its yellow color, rendered more painfully distinct when photographed. The puff-box must be called in to the assistance of art. Here let me intrude one word of general advice. Blue, as we have seen, is the most readily affected by light, and yellow the least; if, therefore, you would keep your complexion clear and free from tan and freckles whilst taking your delightful rambles at the sea-side, discard by all means the blue veil, and substitute a dark green or yellow one in its stead. Blue tulle offers no more obstruction to the actinic rays of the sun than white. Half a yard of yellow net, though not very becoming, will be found very efficacious, and considerably cheaper than a quart of kalydor. The cause of freckles is simple enough. It is nothing more than the darkening of the salts of iron contained in the blood by the action of light. A freckled face is, therefore, an animated photograph.

HOW TO PREPARE SAFETY CLOTHING.

Mrs. Longfellow, wife of the distinguished poet, was seated in her library, at her residence in Cambridge, Massachusetts, in the act of making seals with sealing wax, when a bit of paper lighted and fell upon her dress, which caught fire, and before it could be extinguished she was terribly burned, from which she died after intense suffering. This is only one of thousands of deaths occasioned by accidental burning of ladies' and childrens' dresses. The dresses commonly worn in warm weather are composed of muslin, and such like inflammable materials. These fabrics may be prepared at a very small cost to render them safe against such accidents.

Three salts have been found which may be successfully employed :

the phosphate and sulphate of ammonia, and the tungstate of soda. To apply them, the phosphate of ammonia is mixed with half its weight of the hydro-chlorate of ammonia, and twenty per cent of this mixture is dissolved in water, in which the muslin is to be immersed. A solution of seven per cent of the sulphate of ammonia produces a similar result, and it is the most economical salt that can be employed for the purpose. But the best solution for dresses, &c., which require to be finished with a hot flat-iron, is that of the tungstate of soda: about twenty per cent of which should be used in the solution. To obtain the best effects, these solutions should be applied to the dresses after they are starched and dried. Acid tungstates, borax, and alum, although they render muslins unflammable, tend to injure the strength of the material. The sulphate and phosphate of ammonia should be employed on cotton and linen fabrics that do not require to be ironed; the tungstate of soda for those that are to be ironed. The latter therefore is the safest substance for use in families.

TO PREVENT PRINTS FROM FADING.

The dress should be washed in lather, and not by applying the soap in the usual way direct upon the muslin. Make a lather by boiling soap and water together; let it stand until it is sufficiently cool for use, and previously to putting the dress into it, throw in a handfull of salt; rinse the dress without wringing it, in clear, cold water, into which a little salt has been thrown; remove it and rinse it in a fresh supply of clear water and salt. Then wring the dress in a cloth and hang it to dry immediately, spreading as open as possible, so as to prevent one part lying over another. Should there be any white in the pattern, mix a little blue in the water.

A TEST FOR ARSENIC IN DRESSES.

Dr. Letheby recommends the following method of detecting the presence of arsenic in wreaths and dresses:

“Put a drop of strong liquid ammonia (liquor ammoniæ, the druggist calls it,) upon the green leaf, or dress, or paper, and if it turns blue, copper is present; and copper is rarely, if ever, present in these tissues and fabrics without arsenic being also present—the green compound being arsenite of copper. I have tested papers and dresses in this manner more than a hundred times, and have never failed to discover arsenic when the ammonia changes the green into blue. It is,

therefore, indirectly, a very reliable test; and if every lady would carry with her, when she is shopping, a small phial of liquid ammonia, instead of the usual scent-bottle, the mere touch of the wet stopper on the suspicious green would betray the arsenical poison, and settle the business immediately."

HOW TO FOLD A DRESS.

Miss S. R. Bowman, of Philadelphia, communicates to the *American Agriculturist* the following: Take the exact quarters of the dress, from the bottom of the skirt to the sleeves, double them together with the bosom out; then on a bed lay the skirt perfectly smooth, and begin at the bottom to fold it up just the width of the trunk or drawer. The waist and sleeves will fold nicely together.

TO MAKE CLOTH WATER PROOF.

Dissolve one ounce of alum and an equal quantity of the sugar of lead in one gallon of water, then allow the sediment to fall to the bottom of the vessel. Now take the clear liquid, warm it, immerse the cloth in it and hang it up to dry; after which it will repel water, but air will pass through it freely. It is not so perfectly water proof as an india-rubber composition.

2. Dissolve one pound of alum in two gallons of hot water, and mix them together, when double decomposition will be effected, and the acetate of alum and sulphate of lead will be formed. This solution will render cloth water proof. Immerse the cloth in the clear liquor after the sediment has settled; take it out and dry it in a warm room.

3. Cloth of any description may be rendered water proof thus: Take a quarter of an ounce of yellow soap and a gallon of rain water; boil it for twenty minutes; skim, and when cold put in the cloth: let it soak for twenty-four hours; take it out and hang up to drain, and when it is half dry put it into a solution of half a pound of alum, quarter of a pound of sugar of lead, dissolved in four gallons of rain water. When the cloth has been thoroughly soaked, hang it up to dry. This will not alter the appearance of the cloth and it will resist many hours of rain. Remember that sugar of lead is poison.

4. Take one pound of common brown soap, cut it up into small pieces and dissolve it in hot water. In another vessel dissolve one pound of alum in hot water, the quantity of which (in both cases,) should be sufficient to enable the operator to freely handle twenty yards of cot-

ton cloth. Now immerse the cloth in the first liquid, and open out the folds so as to let every part receive its share of the soap. This will take about fifteen minutes handling. The cloth is now lifted and squeezed to press out some of the water; then it is plunged under the hot alum liquor and handled for about a quarter of an hour, after which it is dried. When dried in a temperature of 150° Fahrenheit, the cloth is superior in quality to that dried in the atmosphere. The alum and soap form an artificial leather—an insoluble compound—in the pores of the cloth.

5. Another process is as follows:—Take one pound of alum and half a pound of sulphate of copper (blue vitriol) and dissolve them in thirty gallons of boiling water and boil the cloth in this liquid for half an hour; then take it out and dry in a warm room. Cloth thus treated will repel rain, which will run from its surface like water from a duck's back, and yet perspiration will pass freely through its pores. This is a good method for treating capes of woollen cloth, and it has been used for this purpose in the French army. Oil-cloth and India rubber water-proof clothes soon render the persons who wear them very feeble, because they prevent the escape of carbonic acid gas from the pores of the body.

6. Boiled linseed oil containing about an ounce of the oxyd of manganese, or litharge, to the quart, will make an excellent water-proof coating for cotton or linen cloth. Put on several coats with a brush, and allow each to dry perfectly.

For Cheap Oil Cloth.—Ochre, mixed with paste, makes a good foundation; it fills up the cloth and makes it better to paint upon.

WEARING FUR.

We never see the fur capes, so common in winter, without a shudder at the mischief we know they are doing. If their warmth is no more than comfortable, then it follows that the ordinary clothing of the vital parts of the body is insufficient, and the system is in a chronic shiver except when the fur cape is on. If suitable winter clothing is habitually worn, then the fur is too heavy an addition, and over heating, followed by dangerous chilliness upon its removal, is the regular consequence of wearing it. Either way the throat and chest suffer. If fur capes, fit only for the coldest weather, were only worn at such times, they would be less injurious; but everybody knows that if a lady has a handsome set of furs she will sport them, in full equipment, at all times through our variable season, not excepting the mid-winter

thaw that feels like summer. There are ways enough of wearing fur, the most beautiful and useful of winter luxuries in dress, without thus abusing it.

The Care of Furs.—To preserve these articles with entire safety, shake them thoroughly in order that any moth already in them may be dislodged, then place them in close cotton or linen bags, and tie the bags as tightly as possible to exclude the miller, and there will be no danger of damage from the moth. Or roll the furs into compact, close bundles, and wrap around them two, three or more wrappings of unbroken paper, in such a manner as to prevent the ingress of the insects. If this be properly done, they may be put where most convenient, in a dark place or light one, in a tight drawer or on an open shelf, and they may be left undisturbed until wanted, whether that be six months or six years, without danger, unless the egg of the moth shall have been deposited in them before so putting them away. To be secure against this, take proper care of furs early in the season before the moth miller makes its appearance. If furs are washed with a solution of a few grains of corrosive sublimate—say a dozen in a pint of warm water—and then dried, it is said moths will not trouble them. Always label corrosive sublimate “Poison.”

BOOTS AND SHOES.

If you want a pair of boots or shoes made to order, says Dr. Hall, and wish to be certain of as easy a fit as that of an old shoe, put on two pairs of thick, woolen socks before your measure is taken.

Why Boots and Shoes should be Polished.—Brightly polished boots and shoes are cooler in warm weather and warmer in cold weather than dull and dusty ones; for in warm weather they reflect the sun, which dusty and dirty boots and shoes absorb; and in cold weather the clean boot does not allow the warmth of your foot to radiate freely, whereas the unclean boot does. Clean, bright boots are consequently more comfortable, as well as respectable, both in warm weather and cold. Not only will different substances, as iron and wood, give out heat or take it in, more or less, but the same substances radiate heat more or less actively as it is bright or dull, rough or smooth. Now, dirty boots are rough as well as dull. They have a surface of many little hills and valleys, so that in truth, there is more surface for the heat to pass through either way. As a rough surface is a larger surface, more heat from within and without always passes through dull and dirty boots than polished ones.

Day and Martin's Blacking.—According to Mr. W. C. Day, the method of making the famous "Day & Martin's" blacking is as follows: The bone-black, in a state of powder, is mixed with sperm oil till the two are thoroughly incorporated. The sugar or treacle is then mixed with a small portion of vinegar and added to the mass. Oil of vitriol is next added, and when all effervescence has ceased, vinegar is poured in till the mixture is of a proper consistence. This constitutes the liquid blacking of Day & Martin.

Another Method for Liquid Blacking.—Ivory or bone-black, four parts; treacle, four parts; sweet oil, one part; oil of vitriol, one part (all by weight.) Mix the first three perfectly. Then add the oil of vitriol diluted with three times its weight of rain water. Let it stand four hours, then add a quart of water.

Paste Blacking.—Mix as in the foregoing, bone-black, eight parts; treacle, four parts; olive oil, one part; oil of vitriol, one part—each by weight—using only just sufficient water to form a paste.

Water-Proof Dressing for Boots and Shoes.—1. Take oil, five ounces; wax, half an ounce; Burgundy pitch, quarter of an ounce; oil of turpentine, half an ounce; melt together and apply until the leather is saturated.

2. Suet, resin, and beeswax melted and applied.

3. Resin, four drachms; lard, one ounce. Mix and melt them together over a slow fire.

4. One-half pound tallow, two ounces beeswax, two ounces olive oil, four ounces hog's lard. Melt the materials by a gentle heat. Rub the mixture on the leather a few hours before using. It should be rubbed on new boots or shoes two or three times before using them. By adding a small quantity of lampblack and increasing the quantity of beeswax, an excellent black-ball is obtained.

5. A solution of two drachms of India rubber.

6. A correspondent of the *Western Christian Advocate* recommends to soak the soles of your boots in warm tar till the pores are filled with it, and after filling the uppers with oil or tallow, use as a polish the following: One and a half ounces shellac, one and a half ounces white pine gum, one drachm Venice turpentine, one drachm sweet oil, one drachm lampblack, and one-half pint alcohol. Use for it a pint bottle, and when all is dissolved apply with an old shaving brush. He says this does not injure the leather, is impervious to water, and makes the leather soft and pliable.

7. A writer in the *Mechanics' Magazine*, who says he had three pairs of boots last him six years, and thinks he will not require any

more for six years to come, tells us how he treats them: "I put a pound each of tallow and resin in a pot on the fire; when melted and mixed, apply it hot to the boot with a painter's brush until neither the sole nor upper will soak any more. If it is desirable that the boots should immediately take a polish, dissolve an ounce of wax in a teaspoonful of turpentine and lampblack. A day or two after the boots have been treated with the resin and tallow, rub over them this wax and turpentine, but not before the fire. Thus the exterior will have a coat of wax alone and shine like a mirror. Tallow and grease become rancid and rot the stitching or leather; but the resin gives it an antiseptic quality which preserves the whole. He adds that boots or shoes should be so large as to admit of wearing cork soles, and the feet will be always warm.

8. The editor of the *Germantown Telegraph* says: We have heard of and tested a great many kinds of waterproof blacking for winter boots. Let us tell you what we have tried for two winters, and found to be the best article we know of. When your boots are stiff and you think need oiling, wash them in castile soap suds—oil before the leather dries, (you may use blackball or any kind of grease,) have a saturated solution of gum shellac in alcohol—anybody can make it, as all there is to be done is to dissolve in a pint or half pint of alcohol just as much shellac as the liquid will take up—and apply this solution with a sponge to the oiled boots. In two or three minutes the shellac will dry and harden, and you will have a coating on your boots through which the water cannot by any possibility penetrate.

Water Proof for Boot Soles.—A writer in the *New York Tribune* says: If hot tar is applied to boot soles, it will make them water proof. Let it be as hot as the leather will bear without injury, applying it with a swab and drying it in by fire heat. The operation may be repeated two or three times during winter, if necessary. It makes the surface of the leather quite hard, so that it wears longer, as well as keeps out the water. Oil or grease softens the sole, and does not do much good in keeping the water out. It is a good plan to provide boots for winter during summer, and prepare the soles by tarring, as they will then become, before they are wanted to wear, almost as firm as horn, and will wear twice as long as those unprepared. It is the pine-wood tar that is recommended, not gas tar.

India rubber soles for boots and shoes are recommended, both to preserve the leather from wear and from dampness.

WASHING, SCOURING, AND RENOVATING CLOTHING.

Washing.—Soiled or foul linen or cotton ought not to remain long unwashed, as the dirt is then more difficult to be removed. Spots of grease or gravy on table linen or napkins should be washed out with soap and water as soon as the cloths are withdrawn, otherwise they are sometimes difficult to remove after the linen has lain long by; and stains from ink, wine, or fruits should likewise be taken out. The manner of doing this will be pointed out.

On the afternoon previous to washing day, says an intelligent English laundress, the linen should be put to soak in a weak lye of lukewarm water, having a little soda put into it; but first it must be well soaped in such parts as are the most soiled; and this operation should be performed with care, as it contributes much to the facility of the washing by loosening the dirt, and thus saving labor as well as the wear of the linen. For soaping the worst parts, soft soap will be found most economical. No more warm water should be used than is just sufficient to cover the linen when pressed down in it, that the strength of the soap may not be reduced. When washing is required to be done in the best manner, it is the custom with some laundresses besides rubbing the worst parts with soap, to run the whole through water that has had soap dissolved in it by cutting it in slices, by which every part of the linen is sure to be penetrated by the soap, and no part can be missed. Care must be taken that the first washing is not done with water too warm, or it will set in the dirt.

Some have recommended to mix lime-water with the water in which the linen is soaked, with the view of saving soap and softening the water. The lime-water is made by mixing a pound of quicklime in ten gallons of water, and letting this stand for twenty-four hours; the clear water is then decanted off from the lime. This practice undoubtedly has the desired effect of rendering less labor necessary in the subsequent washing, and does save soap; but, when used too freely, there is danger of the linen being injured, owing to the causticity of the lime. Indeed, complaints have been made that household linen has been found to be destroyed in a few weeks after coming home from laundresses who have been in the habit of using lime. To save soap, it is usual now to put some soda into the lukewarm water to render it soft; the quantity must be determined by experience; if too much be used it will exhibit its effects upon the hands of the operators. Soda is more particularly useful when the water is at all hard, and will not

make a lather : the best way of using it is to have a jug at hand with the soda dissolved in water, and to add a little at a time as the lather becomes weak. Careless washers leave their soap in the water, where it dissolves and is wasted unnecessarily. It is a good plan to provide little wooden bowls with perforated bottoms, placed on saucers, to put the soap into when it is not used ; wood is the best, as not being liable to be broken.

After the linen is well washed with plenty of lukewarm water the first time, it is to be put into a fresh quantity of water as hot as the hand can easily bear, and washed in this again, examining the whole carefully to see that no part has been missed ; any such must be again washed until the whole is quite clean.

Boiling.—The next operation after washing is boiling the clothes, in order to produce a good color, and to remove entirely the soap or other detergent matters that have been used, which, if left in, would occasion a disagreeable smell. In the water used for boiling, a little soda is sometimes added in the proportion of half a teaspoonful to a gallon of water. Some enclose the linen in a bag before it is put into the copper to boil, in order to guard it effectually from the scum of the water, which is apt to attach itself. After being boiled for about twenty minutes or half an hour, the linen is taken out, well rinsed in abundance of clean hot water, and afterward in clean cold water which has a sufficient quantity of blue to give the proper tinge. It is then taken out and wrung dry ; and care must be taken that the texture is not injured by the operation. It is then ready to be conveyed to the place where it is to be hung up and dried. It is necessary to state that, if the operations were commenced by boiling the linen, the dirt would be fixed instead of being removed. Washing, therefore, precedes the boiling.

Washing Woolens.—If you do not wish to have white woolens shrink when washed, make a good suds of hard soap, and wash the flannels in it. Do not rub woolens like cotton cloth, but simply squeeze them between the hands, or slightly pound them with a clothes pounder. The suds used should be strong, and the woolens should be rinsed in warm water. By rubbing flannels on a board and rinsing them in cold water, they soon become very thick.

It is not the soap suds, nor rinsing waters, that thickens up flannels in washing, but the *rubbing* of it. Cloth is fullied by being “pounded and jounced” in the stocks of the fulling-mill. Flannel, therefore, should always be washed in very strong soap suds, which will remove the dirt and grease by squeezing, better than hard rubbing will in

weak soap suds. It should also be rinsed out of the soap in warm water, and never in cold, as the fibers of the wool do not shrink up as much in warm water after coming out of the warm soap suds. Great care should be taken to rinse the soap completely out of the flannel. This advice will apply to the washing of blankets the same as it does to the washing of flannel.

To Wash Flannels.—Make two tubs of strong soap suds and wash the pieces while it is as hot as the hands can bear it. Rinse in hot, soft water, wring lightly and shake well, and hang where they will dry quickly. Do one piece at a time; for if allowed to become cold while wet, and then again hot, the flannel will inevitably shrink and become harsh. When nearly dry, fold them very smooth, and press with a hot iron.

To Wash Prints, DeLaines and Lawns, which will Fade by Using Soap.—Make a starch water similar for starching prints; wash in two waters without any soap, rinse in clean water. If there is green in the fabric, add a little alum to the starch water.

With respect to printed cottons or muslins, the use of soda is apt to discharge or injure the colors, and is therefore better omitted, using generally soap only.

To Wash Nankeen so as Not to Discharge the Color.—Put it to soak for twenty-four hours in cold water into which a handful of salt has been put; then wash it in warm lye without soap, and do not wring it.

To Clean Silk and Other Fabrics.—Silks are best, next the skin, for some persons. Wash them by spreading on a board smoothly; rub on white soap; brush with a hard brush; then brush off with cold water applied to both sides. A little alum in the last water prevents colors from running. Grease stains are removed from silks by using equal parts of alcohol and camphene; never wring silk after washing, because the creases thus made will always remain. While “burning fluid,” which is a mixture of alcohol and turpentine removes grease and other stains from light colored silks and gloves, sour milk is good for bleaching linen; but grease is best removed from carpets with strong cold soap suds, thus avoiding the danger of camphene. Life has been lost by keeping oxalic acid in the house to remove ink and iron stains; but as it is only suitable for white fabrics (it should be plainly labelled and marked “poison,” in large letters if kept in the house,) it is better to use the juice of lemons or of sorrel leaves, especially as the oxalic acid eats the fabric, unless immediately and thoroughly washed off.

Persons have been suffocated by inhaling the fumes of burning sulphur, when used to bleach out colors and stains of fruits and vegetables particularly, hence the fumes should be conveyed to the stained spot by means of a funnel shaped paper roll; but it is safer to dip stained fabrics in sour milk, then dry in the sun, repeating the operation until the bleaching is perfected.

A good authority says that the pulp of potatoes scraped into water cleanses the finest kinds of silks without injury to the fabric or color.

Another way to Clean Silks.—A quarter of a pound of soft soap, two ounces of honey, and a gill of gin: mix these three things well together, and if too thick add a little more gin. Lay the silk on a board, and with a stiff hat-brush brush it well with the mixture, occasionally dipping the brush in a little cold water to make it froth. Rinse it well in cold water, and hang it to drain (without wringing) for a few minutes; then roll in a towel each piece singly, and iron it wet.

To Clean Silk Stockings.—Wash your stockings first in white soap liquor, lukewarm, then rinse them in four waters, and work them well in a fresh soap liquor; then make a third soap liquor, pretty strong, into which put a little *stone blue*, wrapped in a flannel bag, till your liquor is blue enough. Wash your stockings well therein, and take them out and wring them; let them be dried so that they remain a little moist, then stone them with brimstone, after which put upon the wood leg two stockings, one upon the other, observing that the two fronts or outsides are face to face; then polish them with a glass.

N. B.—The first two soap liquors must be only lukewarm, the third soap liquor as hot as you can bear your hand in it.

To take Grease out of Silk.—Rub a lump of magnesia wet over the spot; when dry, brush off the powder, and no grease will be seen. It may be applied to other stuffs. This is an old and well tried remedy. *Benzine* is the most complete substance to cleanse all fabrics, we have ever seen.

To Clean whole Silk or Satin Dresses.—*Godey's Lady's Book* says the safest way to dry-clean a silk or satin dress of any color is to take the body off the skirt and clean each part separately. If the dress is a valuable one take off the sleeves also. When they are cleaned, remake them; all the French workmen do it. Have two clean earthen vessels that will hold two gallons each, and put half a gallon of camphene in each; have a smooth board, six feet long and three feet wide, suitable brushes, and four or five clean sheets. Be very particular about the sheets being dry and clean. Your sheeting board is not to be encumbered with all your sheets on it; have only one on it. Begin

by cleaning the body first. Put the body in the first liquor of camphene, then lift it on to the board, brush the inside well, and then the outside. When this has been done, put it back in the first liquor of camphene, then in the second, and let it drain over the second a minute; spread a sheet on the board, lay the dress on it, and directly begin and rub it dry with clean Indian cotton cloths. While rubbing it, keep it smooth and shape it, so as that, when dry and cleaned, it will look as if it had not been wetted. Take the sleeves next. Clean them in the same manner as the body. The skirt comes next, one after another, and it is to be cleaned exactly in the same manner as the body and the sleeves, by passing it through the two camphene liquors, brushing, and sheeting it up dry before leaving it. Dispatch is the life and soul of this work, as the camphene is of such a drying nature that it requires great expedition in the cleaning. When the dress is done, it must be hung up for some hours in an airy room. The smell of the camphene will come off in a few hours in a very hot stove-room. The best method is to clean the camphene work in the afternoon and hang it in the stove-room all night.

To Clean Colored Silk Dresses.—Mix six ounces of strained honey with soft soap, then add a pint of gin or whisky. Having taken the dress entirely to pieces, spread each piece on a table, and brush it over with the mixture, first on one side, then on the other; use a clothes brush for this purpose, and brush lightly, always straight down the silk. Rinse the silk in three different waters, without wringing, and roll each piece in a separate cloth; while still damp, iron on the wrong side with a cool iron. This method will answer for all colors but blue or green.

To take Stains out of Silks.—Mix together in a phial two ounces of essence of lemon, and one ounce of oil of turpentine. Grease and other spots in silks are to be rubbed gently with a linen rag dipped in the above composition.

Another Way.—Salts of ammonia mixed with lime will take out the stains of wine from silk. Spirits of turpentine, alcohol, and clear ammonia, are all good to remove the stains from colored silks.

To Remove Stains from Black Silk.—Use spirits of hartshorn. So says a correspondent of the *London Pharmaceutical Journal*.

To Restore to Violet Silk the Color Extracted by Acid Juice.—Brush the portion of the fabric with tincture of iodine; then, after a few seconds, well saturate the spot with a solution of hydrosulphate of soda, and dry gradually; the color is perfectly restored.

Silk pocket handkerchiefs and deep blue factory will not fade if dipped in salt water while new.

To Clean Ribbons.—Take equal quantities of alcohol, soft soap, and honey, mix together; spread the ribbon on a table, and rub it on with a cloth or sponge; it requires considerable rubbing. Rinse it well in several portions of water, till it looks clear. If white ribbon, blue the water. Dry quick, and iron when nearly dry.

2. To clean ribbons, or silks, take equal quantities of brandy, soap, and molasses; beat well together; lay the ribbons on a clean board or table, and rub them well with this upon both sides (till you think they are spoiled;) rinse in clean rain water till this liquid is all out—then dip them in old (sweet) skimmed milk or glue water, and spread them upon a table to dry. When nearly dry, iron them upon the wrong side with a moderately warm iron, and they will look nearly as well as new.

3. Take one tablespoonful of brandy; one do of soft soap; one do of molasses; mix thoroughly together, place your ribbon upon a smooth board and apply your liquid with a soft brush, after which rinse in cold rain water; then roll up in a cloth until nearly dry; iron with a flat not too hot.

4. Mix equal quantities of alcohol, honey, and soft soap—place the ribbon on a clean white cloth, and rub with a white woolen cloth wet in the mixture. Rinse well in cold soft water. Iron before dry.

5. Ribbons may be washed in cold suds, and not rinsed.

To Clean Black Veils.—Pass them through a warm liquor of bullock's gall and water; rinse in cold water; then take a small piece of glue, pour boiling water on it, and pass the veil through it; clap it, and frame to dry. Instead of framing, it may be fastened with drawing-pins closely fixed upon a very clean paste or drawing-board.

To Restore Old Crape.—A bit of glue dissolved in skim milk and water, will restore old crape.

Blonde and Lace are among the most difficult things to wash. This, however, may be effected by winding it round a glass bottle in a single fold, then covering this with two or three folds of muslin. Soak this in clean strong soap suds, and rub and press it through the muslin till the dirt is removed. Rinse it well without taking it off, and apply to it a weak solution of gum arabic in water to stiffen it. Dry it nearly by applying to it clean cloths; and, as it is unrolled, finish by ironing, or glazing with a glass bottle. If the articles are too large for a bottle, a smooth cylinder of hard wood may be used.

To Raise the Pile on Velvet.—We are sometimes asked "What is

the best thing to do with a velvet mantle, after it has been in the rain?" Velvet that is rough and knotty, from rain spots and splashes, can be rendered smooth again, by thoroughly dampening the back of it, and then passing the back of the velvet over a hot iron—the velvet, remember, must be passed over the iron, and not the iron over the velvet. The heat converts the water into steam, which rises through the pile, and so separates every filament. Some contrivance must be made to hold the iron upside down while the velvet is passed over. If rested between two bricks covered with flannel, it will do very well; but if the same pair of hands that carried the umbrella over the mantle when it was out in the rain can be secured for that office, they will be found suitable.

2. When velvet gets plushed from pressure hold the parts over a basin of hot water, with the lining of the dress next the water; the pile will soon rise and resume its original beauty.

To Remove Paint from Silk or Woolen Goods.—Fold some soft cloth several times. Lay the soiled article on it. Wet with benzine, and rub with woolen cloth or sponge. Pour on more benzine and rub again. Repeat as often as may be necessary. The folded cloth will absorb the benzine and grease together. Be careful to prevent spreading. Use no more benzine each time than is just sufficient to wet the soiled spot.

Removing Grease Spots.—A simple agent for removing grease spots from silk and woolen fabrics is very useful. Carbonate of magnesia, saturated with benzole, and spread upon a grease spot to about one-third of an inch in thickness, answers well for this purpose. A sheet of porous paper should be spread upon the benzonated magnesia, and a flat iron, moderately warm, put upon the top of all. The heat of the iron passes through and softens the grease, which is then absorbed by the porous magnesia. The flat iron may be removed in the space of one hour, and the magnesia dust brushed off. Soapstone dust may be used in the same manner and answer nearly as good a purpose.

If burning-fluid or benzole are used to remove grease or other stains, let it be at least two yards from any blaze of candles, gas, lamp, or fire. Valuable lives are lost every year by neglecting this precaution.

The following method of removing grease and oil spots from silk and other articles, without injury to the colors is given in the *Journal des Connaissances Usuelles*: Take the yelk of an egg and put a little of it on the spot, then place over it a piece of white linen, and wet it with boiling water; rub the linen with the hand, and repeat the pro-

cess three or four times, at each time applying fresh boiling water; the linen is then to be removed, and the part thus treated to be washed with clean cold water.

To take grease out of velvet or cloth, get some turpentine from the oil shop, and pour it over the place that is greasy; rub it till quite dry with a piece of clean flannel; if the grease be not quite removed, repeat the application, and when done, brush the place well, and hang up the garment in the open air to take away the smell.

To remove Grease Spots from Woolen Goods.—One ounce of pulverized borax put into one quart of boiling water, and bottled for use, will be found invaluable for this purpose.

To remove Lamp Oil from Cotton and Woolen Goods.—Rub in thoroughly with the hand some clean fresh lard; let it remain for two or three hours, then apply soft soap, and wash in warm water. To be depended on.

To remove Stains of Oil, Wax, Resin, and Pitchy or Resinous Substances.—Alcohol will wash them out; so will spirits of turpentine, and generally without injury to colors. The turpentine may afterwards be removed with alcohol, as it is liable to leave a slight stain. Common burning fluid which is a mixture of alcohol and turpentine, (or camphene,) is an excellent solvent of oil, wax, tar, resin, &c., and it soon dries off after use.

To Clean Woolen.—Flannel shirts or other woollens, should have grease spots removed without fulling them up, thus: Put one ox-gall in three gallons of cold water, in which immerse the garment, and squeeze or pound (not wring) it, until the spots are removed; then thoroughly wash in cold water, else the odor of the gall becomes very disagreeable.

To remove Spots of Grease from Silk or Cotton Dresses without hurting the Color.—An excellent method. Grate raw potatoes into water, so as to form a pulp; pass the liquid through a sieve into another vessel of water, and let the potato subside. Pour the clear liquor from the top, which may be bottled for use. Dip a sponge or small brush in this, and wet the spot till it disappears; then wash it in clean water. Be very careful not to wet more than the spot, as there is danger of discharging the color. Spirits of turpentine is, perhaps, the safest thing for this purpose; apply this with a bit of sponge, and rub it with a clean linen rag; the turpentine will dissolve the grease, and the rag will absorb it. A little essence of lemon will correct the smell of the turpentine.

Volatile Soap for removing Paint, Grease Spots, &c.—Four table-

spoonfuls of spirits of hartshorn, four tablespoonfuls of alcohol, and a tablespoonful of salt. Shake the whole well together in a bottle, and apply with a sponge or brush.

To take Spots of Oil Paint from Clothes.—The paint may be removed before it becomes dry and hard, by brushing the part with soap and water, or more effectually by turpentine or benzine; but after the paint has become dry and hard, soap will not remove it. The spot should then be touched with turpentine applied with a pointed stick; this should remain for some time, till the turpentine has dissolved the hardened oil and loosened the paint. When the place is dry, it may be rubbed between the fingers, and the color will crumble off in loose powder. The smell of the turpentine will go off in a day or two, but may be removed sooner by laying a piece of brown paper on it, and applying a hot iron, or by spirits of wine. Benzine will remove paint and grease from clothing.

Pitch or Tar must be removed by spirits of turpentine, either from cloth or from the hands.

To Remove Fresh Ink Spots.—Cover the part stained with, or submerge it under a little *warm milk*—the newer the better—for from five to ten minutes; then rinse and wash with soft water. It is a very cheap and simple process, and efficacious.

Recent Stains of Ink may be nearly removed if, before the ink is dry, the places be washed with plenty of water after a sponge has been used, to take up as much of the ink as possible: if this does not succeed, rub the part with lemon juice, tartaric acid, or purified wood vinegar, and after that wash it with soap and water.

To take Ink Stains out of Linen.—There are various chemicals capable of extracting ink stains from linen, but the most simple and convenient, when the stain is comparatively fresh is the juice of lemons applied to the spots, then washed out with warm water. Some use common salt with the lemon juice, but this is of no use unless the salt is decomposed by the citric acid of lemon uniting with the soda of salt, thereby setting its chlorine free, which is a most powerful bleaching agent. Lemon juice was long used—and is by some yet—by straw hat bleachers for removing iron stains from Leghorn hats, but oxalic acid has nearly superceded it. The latter is much superior, but is dangerous to keep in families where there are children, as it is a poison. Muriatic acid (old spirit of salt) is a more powerful extractor of ink stains than either citric or oxalic acids, but is unsafe in the hands of others than experts.

"Salt a Universal Remedy."—A writer says: "I had just finished

reading Prof. Johnson's remarks on Mr. Cleveland's theory of salt as a 'universal expounder' and a 'universal remedy' when over went my inkstand on a beautiful light-drab table cover, to my great consternation, as my wife had often cautioned me against this very thing. I rushed for the salt-cellar, and emptied its contents over the black mass of ink, and in five minutes the stain had wholly disappeared; I doubted Mr. Cleveland's theory before, but ought I to doubt it any longer?

"One thing is certain, whether salt be a universal remedy or not, viz: It will surely, if applied immediately, prevent ink stains."

To Remove Rust Stains from Linen or Cotton.—Wash the cloth through one suds, and rinse. While wet, rub ripe tomato juice on the spots. Expose it to hot sunshine until nearly dry, and wash in another suds.

Another Way.—Dissolve oxalic acid in warm water; spread the linen in the sunlight and apply the acid to the spot, which will very soon disappear. It will remove many other stains. As the acid is a poison, it must be kept from children's reach. If too strong, it will injure the fabric itself. It should be well washed out almost as soon as applied.

For taking out Iron Rust and Yellow Stains.—Dip the articles in a strong solution of Tartaric acid and lay them exposed to the sun.

Stains from Vegetable Substances, as Fruit, Wines, &c., may be removed by simple washing, if that can be done before the stain is dry; but after that the coloring matter adheres with more force, and is sometimes difficult to remove. If the stain be recent, it may be destroyed sometimes by rubbing on a little alkali, as soda or pearlash; but a mixture of ammonia and spirits of wine is safer; the spots should be soaked in it some time. Some faint stains left may be destroyed by moistening the cloth and holding the spots, at a distance, over the fumes of a brimstone match.

Some recommend putting salt upon the part as soon as the accident has happened, and probably the stain may come out in the washing. Rubbing on the stained part immediately soap and whiting is also recommended; after which it must be well bleached in the air. Some stains may be removed by sour buttermilk.

If the fruit stains have been long in, rub the part on each side with yellow soap, then put on thick starch in cold water and rub it well in; hang the linen in the air, exposed to the sun for three or four days, and, if that is not sufficient, repeat the process.

To Remove Mildew from Linen.—Moisten a piece of soap, and rub it on the parts affected. Then rub over the parts with whiting; lay the linen on the grass, and from time to time, as it becomes dry, wet it a little; or,

Dip the articles in soft soap, whether linen or cotton, and spread them in the sun, on the grass; or,

Mix soft soap with powdered starch, half as much salt and the juice of a lemon; apply it to the stain with a brush on both sides of the linen; let the stained article lay on the grass day and night till the stain comes out.

Iron Moulds may be removed by dipping the linen in sour butter-milk, and then drying it in a hot sun; wash it in cold water, repeat this three or four times.

Stains Caused by Acids may be removed by tying some pearlash up in the stained part; scrape some soap in cold soft water, and boil the linen till the stain is gone.

To Restore the Nap in places where clothes have been worn thread-bare, a process may be occasionally resorted to which is employed by dealers in old clothes. They soak the clothes in cold water for half an hour, and then, having laid it upon a smooth board, they raise the nap by rubbing it with a thistle called a teazle, used by manufacturers of cloth. The nap is then brushed in one direction to lay it.

To Sulphur Silks, Woolens, Straw Bonnets, &c.—The fumes of sulphur, consisting of the sulphureous acid gas, have a powerful effect in destroying color; and are therefore, much employed in whitening various substances. The way of manging it is as follows: Provide a large box or cask to hang the clothes in, and on the bottom of the box place a small chafing dish with some lighted charcoal; upon this strew some brimstone, and cover up the box close, leaving the things to hang for several hours.

To Clean White, Brown, or Fawn-Colored Feathers.—Dissolve some fine white soap in boiling soft water, and add a small bit of pearlash. When the water is just cold enough for the hand to bear it, pass the feathers several times through it, squeezing them gently with the hand. Repeat the same process with a weaker solution of soap, and then rinse the feathers in cold water, beating across the left hand for about ten minutes, to expel the water; when they are nearly dry, draw each fibre or flue over the edge of a small blunt knife, turning it round in the direction you want the curl to go; then, if the feather is to be flat, put it between the leaves of a book to press it.

Black Feathers may be cleaned with water and some gall, proceeding as with the last.

Wash-Leather Gloves, as their name implies, may be easily washed with soap and water; when nearly dry, the fingers should be stretched with a piece of wood.

White and Colored Kid Gloves are more difficult to clean; but it is said they may be cleaned perfectly by laying them on a clean towel, rubbing them with a piece of flannel dipped in a hot, strong lather of white soap, till the dirt is removed, using as little water as possible. Hang them up at a distance from the fire to dry gradually, and after they are quite dry, pull out the shrivels and stretch them on the hand.

To Clean Gloves lay them on a clean board, and first rub the surface gently with a clean sponge and some camphene, or a mixture of camphene and alcohol. Now dip each glove into a cup containing the camphene, lift it out, squeeze it in the hand, and again rub it gently with the sponge, to take out all the wrinkles. After this gather up the cuff in the hand, and blow into it to puff out the fingers, when it may be hung up with a thread to dry. This operation should not be conducted near the fire, owing to the inflammable nature of the camphene vapor.

To Clean Kid Gloves.—The following directions are from Septimus Piesse: It is not white gloves alone that require cleaning; green, buff, mauve, and light gloves are always fashionable, but they soon soil, and thus lose their beauty long before they are worn out. To clean such gloves:—Take two ounces of white curd soap, or of cold cream soap; a quarter of an ounce of carbonate of potass; four fluid ounces of water; and one drachm of carbonate of ammonia. Cut the soap up fine, and boil it gently in water; when of a uniform paste, add the ammonia and the carbonate of potass, and stir the mass well together. Then put it into a jar, and when cold it will set. The directions for use are:—Rub the paste on the gloves (upon the hand) with clean soft flannel, and as the dirt disappears use more clean paste and flannel. If the paste gets hard add hot water.

The *Scientific American* recommends that when kid gloves are stained with grease and dirt they may be cleaned with a composition of benzole containing a few drops of ether. The gloves are to be laid upon a board, then rubbed with a sponge containing the fluid, after which they are dipped in the fluid, squeezed, rubbed with the sponge dry upon the board, then expanded by blowing into the opening for the hand, and when all the fingers are opened full they are hung up

to dry. This cleaning operation will not restore faded colors. Common burning fluid, composed of four parts of alcohol and one part of turpentine will answer for cleaning kid gloves nearly as well as the benzole fluid. In using such fluid care must be exercised to conduct the operation at a distance from fire, as the vapor which is generated is very combustible, and will explode if ignited.

Godey's Lady's Book says kid gloves may be cleaned by placing them on a board, and stretching out their fingers; then take a mixture of ten parts of alcohol and two parts of turpentine, and rub them with this, using a soft sponge for the purpose, which will remove the grease and dirt, and not injure the color; all the dirt and liquid must be pressed out of the gloves with the sponge, by squeezing it in the hand, then rubbing it on the gloves to absorb the liquid, till no more can be taken up. Both the outside and inside of the gloves are to be treated thus; they are to be dried in a moderately dry oven, and the fingers stretched to prevent shrinking.

To Wash a Thread Lace Collar.—Take an empty wine bottle, push it into the leg of a stocking, and tie a string round the stocking at each end of the bottle, so that it will fill the bottle tightly. Now baste your collar on to the stocking; the more carefully basted the edges are the greater will be your success. Carry the collar round and round the bottle, allowing it to retain its shape easily. Soap well, and let it soak over night; rinse with hot water in the morning, and allow it to dry on the bottle; when taken off it will look as good as new and need no ironing.

To Clean Gold and Silver Lace.—Sew it in clean linen cloth, boil it in a pint of soft water and two ounces of soap, and wash it in cold water; if it be tarnished, apply a little warm spirits of wine to the tarnished parts.

Collars, Under-sleeves and Handkerchiefs, of very fine muslin or lace, will not bear much squeezing when washed. They can be made perfectly white and clean without either, or by the following process: Rinse them carefully through clear water, then soap them well with white soap, place flat in dish or saucer, and cover with water; place them in the sun. Let them remain two or three days, changing the water frequently, and turning them. Once every day take them out, rinse carefully, soap and place in fresh water. The operation is a tedious and rather troublesome one, but the finest embroidery or lace comes out perfectly white, and is not worn at all, where, in common washing, it would be very apt to tear. When they are white, rinse and starch in the usual way.

STARCHING AND IRONING.

Gum Arabic Starch.—Take two ounces of fine white gum arabic powder, put it into a pitcher, and pour on it a pint or more of boiling water (according to the degree of strength you desire,) and then having covered it, let it set all night. In the morning pour it carefully from the dregs into a clean bottle, cork it, and keep it for use. A tablespoonful of gum water stirred into a pint of starch, that has been made in the usual manner, will give always (white, black or printed) a look of newness when nothing else can restore them after washing. It is also good, much diluted, for thin white muslin.

Starch Polish.—Take equal parts of white wax and spermaceti; melt them together, and run them into thin cakes on plates. A piece the size of a cent added to a quart of prepared starch gives a lustre to the clothes, and prevents the iron from sticking.

Horse Chestnut Starch.—The *Boston Traveler* says: Dr. Jewett has left in the counting room of the *Traveler*, where it may be seen by those interested in the matter, an ounce or two of fine starch, extracted from only eight horse chestnuts, picked up in the street. The experiment shows this nut to be so abundant in starch, that it may readily be turned to valuable account.

The Best Starch will keep good in a dry, warm room for some years.

Glossing Linen.—Inquiry is frequently made respecting the mode of putting a gloss on linen collars and shirt bosoms, like that on new linen. This gloss, or enamel as it is sometimes called, is produced mainly by friction with a warm iron, and may be put on linen by almost any person. The linen to be glazed receives as much strong starch as it is possible to charge it with, then it is dried. To each pound of starch a piece of sperm, paraffine, or white wax, about the size of a walnut, is usually added. When ready to be ironed the linen is laid upon the table, and moistened very slightly on the surface with a clean wet cloth. It is then ironed in the usual way with a flat iron, and is ready for the glossing operation. For this purpose a peculiar heavy flat iron, rounded at the bottom and polished as bright as a mirror, is used. It is pressed firmly upon the linen and rubbed with much force, and this frictional action puts on the gloss. "Elbow grease" is the principal secret connected with the art.

Flat Irons.—If they are rough, rub them well with fine salt, and it will make them smooth.

SOAPS, WASHING FLUIDS, POWDERS, ETC.

Soap should be cut into pieces when first brought in, and kept out of the air for two or three weeks; for, if it dries quickly, it will crack, and, when wet, break. Put it on a shelf, leaving a space between each piece, and let it grow hard gradually; thus it will save a full third in the consumption; but, for coarse washing soap soft will go further than the hard.

Washing Soap.—Two pounds bar soap, one ounce borax. Shave the soap fine. Put that and the borax in one quart of water, and simmer till well mixed. One-fourth of a pound of this compound is sufficient for a washing for six persons. Soak the clothes a few hours, and then put in the soap and boil thirty minutes, and then rinse in two or three waters, and hang out. If the clothes should not be clean enough after boiling, a little rubbing will generally suffice.

Labor Saving Soap.—To dissolve hard soap, or common soft soap, add caustic alkali made by dissolving soda in water, and adding thereto an equal weight of slacked lime, then stirring the two together, allow the lime to settle and afterward pour the clear liquor among the soap. One pound of soda is sufficient for two gallons of soap. Good for greasy, waste and coarse cotton articles, but tends to render fine linens yellow in appearance.

How to Make Hard Soap.—Take six pounds of soda, six pounds of fat, three pounds of lime, and four gallons of water. Put the soda, lime and water in the boiler, and boil them. Then take it out in something to settle; then put the fat in the boiler and add the water (leaving the settlings behind.) Boil about half an hour, or until it is thick. Then take it out to cool, when it is ready to cut as is desired.

2. The lady who furnishes this says it has been in use in her family for several years, and she never knew it to fail of producing a superior article for all purposes.

Five pounds of lime slaked in twelve quarts of boiling water, five pounds of sal soda dissolved in twelve quarts of water; mix it together and let it stand from twenty-four to forty-eight hours. Dip off all the water free from lime; add to it (the water) three and a half pounds of clean grease; let it boil up, then add two ounces of resin, and boil the whole till it thickens, which usually takes three or four hours. Have ready a tub, or other convenient vessel, wet; pour in the soap, and when cold cut in bars, and dry well before using, and I will add that no one need be alarmed at the shrunken and shrivelled

appearance it assumes during this process, or imagine that it has lost any of its good qualities because it does not look "as good as new."

3. Pour four gallons of boiling water over six pounds of washing soda and three pounds of unslaked lime. Stir the mixture well, and let it settle until perfectly clear. When clear, strain the water and put six pounds of fat with it, and boil two hours, stirring it most of the time. If it does not seem thin enough, put another gallon of water on the grounds, stir and drain off, and add as is wanted to the boiling mixture. Its thickness can be tested by occasionally putting a little on a plate to cool. Stir in a handful of salt just before taking off the fire. Have a tub ready soaked, to prevent the soap from sticking; pour it in and let it settle until solid.

4. Take two pounds clear grease to one pound resin; make this into soft soap, and while it is boiling, to every ten gallons of soap add one gallon of salt. Boil one hour after adding the salt. When it is done boiling, the soap will be at the top and the ley at the bottom. Skim off the soap; keep it and gently stir it in a leaky vessel so that the ley will all run out the same as buttermilk does out of butter; then work the soap as butter is worked, until it is as thick as hasty pudding; then set it away to cool. Turpentine or tar will answer instead of resin, but are not so good. Any refuse salt is good enough, or old pickle.

5. Omit the resin, and make as above. When the soap is skimmed off, and the ley all drained out, add boiling water to the soap, three parts water to four of soap; stir well together, and continue to stir it gently as long as it is thin enough to settle level.

6. Four gallons of water, six pounds of washing soda, six pounds of clean fat, three and one-half pounds of stone lime. Put the lime and soda in the water and boil until the soda is dissolved; then pour it into a tub and let it settle: then pour off the water gently with as little lime as possible; then add the fat and boil it until done. Take a little out in a saucer, and if no water remains under when cold it is done. Pour it in deep pans, or a tub, and when cold cut in bars.

To Make Hard Soap of Soft.—Heat the soap and add common salt, a little at a time. Take out a little occasionally and try it by cooling in a dish—when sufficiently settled, a thick scum will rise to the surface. Allow it to cool in tubs; some liquid will settle at the bottom, but the greater part will be hard, and can be cut into bars and dried. It improves by age and drying.

2. Take three pailfuls (twelve quart pails) of common soft soap, add five pints of salt. Heat them together and stir them well and

thoroughly, Set the mixture aside to cool and harden. Take the hard soap from the top, and put to it one and a half pailfuls of *weak lye* and two and a half pints of salt. Heat and stir well together, and cool as before. Again remove the soap, melt it and pour it into any shaped moulds you choose.

Shaker Plan of Making Soap.—The trustees of Shaker Village, N. H., give to the *Scientific American* the following easy and cheap method of making soft soap: "Place a shallow iron kettle, to hold from four to six barrels just out of the wash room, under cover of a shed. Extend half or three-quarters inch pipe for steam to the middle of the bottom, bending it to form of surface, and terminating with open end. Take another pipe to discharge cold water over the top of the kettle. Use the best quality of 'first sorts' of potash in the proportion of six pounds of potash to seven pounds of grease for a barrel of forty gallons. Break up the potash into small lumps and dissolve it in, say, two pails of hot water to twenty-four pounds. It dissolves rather slowly when potash is good. When dissolved, put the solution into the kettle and add the grease quite warm, and stir the mixture together. Allow it to stand over night if convenient. In the morning apply a moderate jet of steam until the mixture appears ropy, or rather, *soapy*. Shut off the steam and open the cold water valve, stirring the mixture as the water runs, until the kettle is full, or the required quantity obtained for the materials used. My man makes an excellent article, and never fails. The materials for forty gallons of soap cost, at present prices, sixty-four cents, the labor nothing, as the man is not hindered by making it."

Pure White Soap is composed of fatty acid, and alkali, and water. In one hundred parts of soap there are sixty-three of fatty acid, six and a half of alkali, and thirty and a half of water. The process of making hard soap is not so simple as that of soft soap. White or curd soap is made of the finest tallow or suet only, and boiled to a thicker consistency than other soaps upon a stronger alkaline lye, and before it is put into the frame to cool it requires *crutching*. This consists in stirring it about in an intermediate vessel between the boiler and cooling frame, to break and mix the curd. Nothing but the best materials are used for this soap.

All our common brown soaps contain resin, which, though not generally held to be an adulteration, makes imperfect soap.

The most convenient and cheap alkali for making soap is sal soda. It must be prepared for use by dissolving it in about five times its weight of water then adding half its weight of fresh slaked lime. The

carbonic acid leaves the soda, unites with the lime, and forms chalk, which sinks to the bottom of the vessel. The clear liquor is caustic soda lye, fit to be boiled with tallow, oil or fat, to make soap. Any person may make hard soap from soda lye by a very simple apparatus, viz: a wash tub, and a small tin or iron boiler. Tallow, suet, lard, oils, resin, fat from deceased animals, and boiled bones, are the most common materials employed in soap making.

Washing Fluid.—Stir equal weights of common soda and fresh slacked lime in water, then allow the sediment to settle to the bottom of the vessel. The clear lye thus made is the well-known “washing fluid,” and it is the lye that is employed for making hard soap by boiling oil or grease with it for several hours.

Another.—One gallon water, one pound washing soda, quarter of a pound unslacked lime. Simmer twenty minutes. When cool, pour off the clear fluid into glass or stone ware; it will ruin earthenware. If the clothes are very dirty, put them in soak over night; wring them out in the morning; soap them, and put them into the wash kettle, with enough water to cover them. To a common sized kettle or boiler full, put a teacupful of fluid. Boil half an hour, then wash well through one suds, and rinse thoroughly in two waters.

It is good also for cleaning paint. A very little put in the water will remove grease or fly stains, much better than soap. Too much of it will remove the paint also.

Another.—The following is a good and economical washing fluid: Dissolve one pound of soda in one quart of hot water, and add to it four quarts of lime-water; when this settles pour off the clear. Next dissolve three ounces of borax in one quart of boiling water, and add to it the five quarts of clear water. When cold dissolve it in two or three ounces of pulverized carbonate of ammonia. Put it in bottles, and keep it tightly corked. Use half a pint, or less, to about five gallons of water; put it, with some soap, into the tub of clothes the night before washing day, or a short time before boiling the clothes. Many who are in the habit of using washing fluids do not appear to be aware of their nature and specific objects. They are intended to provide a slight excess of alkali to combine with the grease and dirt of the clothes. They should be sparingly used at best, and wholly discarded in washing laces and fine linens. Good soap suds of sufficient strength make the best washing fluid for fine white textile fabrics. The chloride of soda makes an excellent fluid for whitening linen that has become yellow in color, and as a washing fluid inferior to none. The use of strong caustic alkalies imparts a yellowish tinge to fine linens

and tends to injure them, and therefore should be used, if at all, with much caution.

Washing fluid containing spirits of turpentine is said to be injurious to the health of persons using it, in some instances relaxing and weakening the joints of the hands and arms and affecting the whole system.

Another.—Take half a pound of unslaked lime, one pound of soda, two quarts of soft soap—slake the lime with two quarts of boiling water, and let it stand until settled. Dissolve the soda with two quarts of boiling water. Pour off the lime water, being careful not to let any lime go in. Mix the lime water with the soda and soap, and then stir together. Apply this preparation to the clothes, the same as soft soap, and boil them. They will need but little rubbing. This is said to be very superior.

Washing Powder.—One-quarter of a pound of borax to one gallon of soft soap dissolved in one gallon of water. Apply as usual to the clothes, and soak at least two hours before washing.

Borax for Washing and Bleaching.—One of the best bleaching and emollient agents that can be employed in washing, either the person or clothing, is common refined borax. It should be dissolved in hot water at the rate of half a pound to ten gallons; a great saving in soap is effected by its use. The borax should be pulverized first. It may be procured in the form of crystals at any druggists, and can be powdered with a rolling pin, or a hammer; it will not injure the most delicate fabric; and laces or other fine tissues may be washed in a solution of borax with manifest advantage to their color and consistency.

The *Lady's Book* remarks that the wife of an American Agriculturist has been experimenting on soaps, and finds that the addition of three-quarters of an ounce of borax to a pound of soap, melted in without boiling, makes a saving of one-half in cost of soaps, and three-fourths the labor of washing, and improves the whiteness of fabrics; besides, the usual caustic effect is removed, and the hands are left with a peculiar soft and silky feeling, leaving nothing more to be desired by the most ambitious washerwoman.

More about Borax for Washing.—A London paper, *The Field*, says: The washerwomen of Holland and Belgium, so proverbially clean, and who get up their linen so proverbially white, use refined borax as a washing powder instead of soda, in the proportion of a large handful of borax powder to about ten gallons of boiling water; they save in soap nearly half. All the large washing establishments adopt the

same mode. For laces, cambrics, &c., an extra quantity of the powder is used, and for crinolines, required to be made very stiff, a strong solution is necessary. Borax being a neutral salt, does not in the slightest degree injure the texture of the linen; its effect is to soften the hardest water, and, therefore it should be kept on every toilette table. To the taste it is rather sweet, is used for cleansing the hair, is an excellent dentrifice, and in hot countries is used in combination with tartaric acid and bi-carbonate of soda as a cooling beverage. Good tea can not be made with hard water; all water may be made soft by adding a teaspoonful of borax powder to an ordinary sized kettle of water, in which it should boil. The saving in the quantity of tea used will be at least one-fifth.

Soda, by softening the water saves a great deal of soap. It should be melted in a large jug or pail of water, some of which pour into the tubs and boiler.

Many good laundresses advise soaping linen into warm water the night previous to washing, as facilitating the operation, and less friction being required.

HOUSEHOLD CLEANING.

Cleaning the Sides of Apartments.—As oil paint is injured by too frequent scouring, it is necessary to use every means which may render the scouring of paint rarely needful; first, by cleaning the walls, edges, and mouldings from all lodgments of dust, frequently sweeping and daily dusting them. Partial washing of spots and stains on oil paint may prevent the necessity of more frequent general scourings. Every week examine the paint, and remove with a flannel and soap and water any spots upon it, finger marks, &c., within reach; having wiped them away with the flannel, taking care to wipe those parts dry, so as not to leave it visible when the cleaning has been done.

In washing or scouring paint little soap should be used, the alkali of the soap having a tendency to injure oil paint. But water alone is not sufficient. After scouring with the brush and soap, plenty of water should be used to wash off what remains of the soap: otherwise, if left on the paint, it will cause its decay.

The parts of stairs painted in oil which are not covered with carpet should be washed weekly with warm water and two sponges; one to

wash, the other to dry the stairs with; by using sponges the edges of the stair carpet are not so likely to be injured as by a brush or scouring flannel.

To Clean Paint—Smear a piece of flannel in common whiting, mixed to the consistency of common paste, in warm water. Rub the surface to be cleaned quite briskly, and wash off with pure cold water. Grease spots will, in this way, be almost instantly removed, as well as other filth, and the paint will retain its brilliancy and beauty unimpaired.

For Cleaning Floor Boards.—By scrubbing them with a mixture made by dissolving unslaked lime in boiling water. The proportions are two tablespoonfuls to a quart of water. No soap need be used.

To Scour Floor Boards.—Lime one part, sand three parts, soft soap two parts. Rinse with clean water, and rub dry. Gives good color, and keeps away vermin.

To Clean Grease from Floors.—Spread over the stain a thick coat of soft soap, then pass a heated flat iron a few times across it, after which, wash immediately with clean warm water.

For removing spots of grease from boards, take equal parts of fullers' earth and pearlash—a quarter of a pound of each—and boil in a quart of soft water, and, while hot, lay it on the greased parts, allowing it to remain on them for ten or twelve hours, after which it may be scoured off with sand and water. A floor much spotted with grease should be completely washed over with this mixture the day before it is scoured. Fullers' earth and ox-gall boiled together form a very powerful cleansing mixture for floors or carpets. Spirits of turpentine rubbed for a short time forcibly on grease spots, dissolve the grease in the floor, and make it readily unite with pearlash or soap, with either of which the parts should be afterward washed. Drops of talow may be scraped off.

Stains of Ink Dried in Floors, are difficult to eradicate. Strong vinegar or salts of lemon will remove them. Strong muriatic acid, or spirits of salts, applied with a piece of cloth; afterwards well washed with water: will take ink out of boards.

Red Wine Stains on Boards may be removed by laying on them a strong solution of soda. If this be not sufficient, the chloride of lime or "bleaching liquid," will remove them.

The Droppings from Stove Pipes, where wood is burnt, leave very persistent stains. Oxalic acid will remove the iron, and when the spot is then well washed, ammonia may take up what is soluble.

To make Grease Balls.—Shave down half a pound of white soap,

and mix it with three ounces of fullers' earth powdered; then mix together three ounces of ox-gall and two ounces of spirits of turpentine; with this moisten the soap and fullers' earth till you have a stiff paste. Mix it thoroughly, and beat it well. Make it into balls with your hands, and place the balls where they will dry slowly. To use it, scrape down a sufficiency, and spread it on the grease spot. Let it rest awhile; then brush it off, and scrape and apply some more. A few applications will generally remove the grease.

Cleaning Door Knobs.—To secure the paint around them when cleaning, place a piece of pasteboard with a hole cut to encircle them, and a slit to slip on.

Care of and Cleaning Furniture.—It is often necessary to clean mahogany and marble, and restore mahogany varnish. Use no soap on them, but wash them in fair water, and rub them till dry with a clean, soft cloth. A little sweet oil, rubbed on occasionally, gives them a polish. Rub furniture with a cloth dipped in oil, then with a clean cloth till dry and polished. Rubbing with sweet oil will restore spots from which the varnish has been removed. White spots in varnished furniture may be removed by rubbing them with a warm flannel, dipped in spirits of turpentine. Ink spots may be removed by rubbing them with a woolen cloth, dipped in the oil of vitriol and water, being careful to touch only the spots with the vitriol; rinse them with saleratus water, and then with clear water. Mahogany furniture may be beautifully polished thus: rub it with cold drawn linseed oil, then wipe off the oil, and polish by rubbing smartly with a clean, dry cloth.

To Remove spots from Furniture.—A hot shovel held over varnished furniture will take out white spots. Spots in furniture may be easily removed by rubbing them with flannel wet with the same thing that took the color out. White spots on varnished furniture may be removed by rubbing them with a warm flannel, dipped in equal parts of spirits of turpentine and sweet oil.

Oiling Furniture.—A little sweet oil spread over the surface of varnished furniture, then rubbed until the wood is perfectly dry with a piece of soft silk, gives the surface a beautiful glossy appearance.

To take Bruises out of Furniture.—Wet the part with warm water; double a piece of brown paper five or six times, soak it, and lay it on the place; apply on that a hot flat-iron till the moisture is evaporated; if the bruise be not gone, repeat the process. Generally, after two or three applications, the dent or bruise is raised to a level with the surface. If the bruise be very small, merely soak it with warm water,

and apply a red-hot poker near the surface; keep it constantly wet, and in a few minutes the bruises will disappear.

To take Stains out of Mahogany.—Spirits of salts, six parts; salt of lemons, one part. Mix, then drop a little on the stains, and rub them till they disappear.

To Clean Cane Chairs.—Sponge them until soaked, with soap and hot water.

To Clean Sofas and Chairs.—If the covers of sofas and chairs are dirty, they may be cleansed without being removed, by first washing them over with warm water and soap rubbed over with a flannel; then, before they are dry, sponge them over with a strong solution of salt and water, in which a small quantity of gall has been mixed. The windows of the room should be opened, so as to secure a perfect drying, and the colors and freshness of the articles will in this way be restored.

Ottomans and Sofas, whether covered with cloth, damask or chintz, will look much the better for being cleaned occasionally with bran and flannel.

Rosewood Furniture should be rubbed gently every day with a clean soft cloth to keep it in order.

To Cleanse Feather Beds.—Rub them over with a stiff brush, dipped in hot soapsuds, when clean, lay them on a shed or other clean place, where the rain will fall on them. When thoroughly soaked, let them dry in a hot sun for six or seven successive days, shaking them up well and turning them over each day. They should be covered over with a thick cloth during the night; if exposed to the night air they will become damp and mildew.

To Cleanse Mattresses.—Hair mattresses that have become hard and dirty, can be made nearly as good as new by ripping them, washing the ticking, and picking the hair free from bunches, and keeping it in a dry, airy place several days. Whenever the ticking gets dry, fill it lightly with hair and tack it together.

Straw matting may be cleaned with a large coarse cloth, dipped in salt and water, and then wiped dry. The salt prevents the matting from turning yellow.

Cleaning Soiled Carpets.—When soiled, carpets may be cleaned after beating with the following mixture: Two gallons of water, with half a pound of soft soap dissolved in it, to which add four ounces of liquid ammonia; this may be rubbed on with a flannel, and the carpet then rubbed dry with a coarse cloth. Or,

2. Take a pail of cold water, and add to it three gills of ox-gall.

Rub it into the carpet with a soft brush. It will raise a lather ; which must be washed off with clear cold water. Rub dry with a clean cloth. Fullers' earth is used for cleaning carpets, and weak solution of alum or soda are used for reviving the colors. The crumb of a hot wheaten loaf rubbed over a carpet has been found effective.

In nailing down a carpet after the floor has been washed, be certain that the floor is quite dry, or the nails will rust and injure the carpet.

Beat a carpet on the wrong side first ; and then more gently on the right side. Beware of using sticks with sharp points, which may tear the carpet. The oftener carpets are shaken, the longer they wear ; the dirt that collects under them grinds out the threads.

Sweeping Carpets.—Draw the broom to you with short, quick strokes, taking up the dirt every half-yard in a dust-pan, or at each stair, and thus avoid working the dirt into the cleaner parts. Never use tea-leaves, paper, damp grass, or salt, to collect the dust, let the dust-pan do that.

It is said that persons who are accustomed to use tea leaves for sweeping their carpets, and find that they leave stains, will do well to employ fresh cut grass instead, as it is better than tea leaves for preventing dust, and gives the carpets a very bright fresh look.

Every one knows that the daily dust arising from sweeping carelessly, causes a permanent injury to furniture, books, pictures—and the lungs. The old plan of sprinkling the carpet first with damp tea grounds, and then sweeping with a bristle brush was much better than the careless sweeping practiced by some ; but latterly we have found it much easier and more convenient to use one of the new revolving *carpet-sweepers*, which takes up the dust and puts it away in a box without its rising at all, and without using any moistening application. They are especially suited to libraries, offices, cabinets, &c.

Treatment of Oil-Cloth.—Oil-cloth ought never to be wetted—if it can be possibly avoided—but merely to be rubbed with a flannel, and polished with a brush of moderate hardness, exactly like a mahogany table, and by this simple means the fading of the colors, and the rotting of the canvass, which are inevitably attendant upon the oil-cloth being kept in a state of moisture or dampness, are entirely avoided.

If oil-cloth is to be washed, let it be first swept, then cleansed with a large soft cloth and lukewarm or cold water, but never scrubbed with a brush ; and on no account use soap or hot water, as either will bring off the paint.

To Clean Wall Paper.—Soiled wall papers may be made to look as well almost as new in most cases, by the following expedient: take

about two quarts of wheat bran, tie it in a bundle in coarse flannel, and rub it over the paper. It will cleanse the whole paper of all descriptions of dirt and spots, much better than any other means that can be used. Some, however, use common wheat bread, and claim it is better than the bran.

It is said that old paper is very much improved in appearance by simply rubbing it well with a flannel cloth dipped in Indian meal.

To Clean Brass.—Rub the surface of the metal with rotten-stone and sweet oil, then rub off with a piece of cotton flannel and polish with soft leather. A solution of oxalic acid rubbed over tarnished brass with a cotton rag soon removes the tarnish, rendering the metal bright. The acid must be washed off with water and the brass rubbed with whitening in powder and soft leather. When acids are employed for removing the oxide from brass, the metal must be thoroughly washed afterwards, or it will tarnish in a few minutes after being exposed to the air. A mixture of muriatic acid and alum dissolved in water imparts a golden color to brass articles that are steeped in it for a few seconds.

Brasses, Britannia Metals, Tins, Coppers, &c., are cleaned with a mixture of rotten stone, soft soap, and oil of turpentine, mixed to the consistency of stiff putty. The stone should be powdered very fine and sifted; and a quantity of the mixture may be made sufficient to last for a long while. The articles should first be washed with hot water, to remove grease. Then a little of the above mixture, mixed with water, should be rubbed over the metal: then rub off briskly, with dry clean rag or leather, and a beautiful polish will be obtained.

For cleaning brasses belonging to mahogany furniture, either powdered whiting or scraped rotten-stone mixed with sweet oil and rubbed on with a buckskin is good.

Clean a brass kettle, before using it for cooking, with salt and vinegar.

To Clean Brass Ornaments.—Wash the brass work with roche alum boiled to a strong lye, in the proportion of an ounce to a pint. When dry, it must be rubbed with fine tripoli.

To Clean Marble.—First use soap and whitening; then rub off and polish with a piece of leather. Iron stains may be removed from marble with a solution of oxalic acid; but it renders the surface of the marble rough.

Another Way.—Chalk, in fine powder, one part; pumice stone, one part; common soda, two parts; sift it through a fine sieve and mix together. Wash the spots with this powder mixed with a little water,

then clean the whole of the stone, and wash off with soap and water.

Another.—Marble may be cleaned by mixing up a quantity of the strongest soap-lees with quick-lime, to the consistence of milk, and laying it on the marble for twenty-four hours; clean it afterwards with soap and water.

Marble Chimney-Pieces may be cleaned with diluted muriatic acid, or warm soap and vinegar.

All kinds of Marble, as well as alabaster, can be cleaned by simply mixing pulverized pumice-stone with verjuice, letting it remain several hours, then dipping in a perfectly clean sponge, and rubbing the marble until it is clean; after this, rinse off with pure water, and rub it dry with a clean linen cloth.

To remove Stains from Marble.—First rub it with soap and water to remove all grease, then wash it with a clean sponge and some dilute muriatic or oxalic acid, and use warm water to rub all off. Finally polish down with some fine French whiting.

To clean Carved Ivory.—Wash with white soap and water, not very warm, and after rinsing it by pouring cold water over it, wipe it slightly with a soft cloth, and place it in the sun to dry; its color will be quite restored, as the rays of the sun have a bleaching effect upon it.

To Clean Tin and Pewter.—Wash thoroughly clean with warm water, into which a handful of bran and a few slices of soap have been thrown while hot. Dry, and then with some of the best whiting powdered, and a little sweet oil, rub well and wipe clean; then dust them over with some dry powdered whiting in a muslin bag, and rub dry with soft leather. When tin covers come from the table, they must be wiped very dry before they are hung up, or the steam will rust the inside.

Cleaning Tinware.—Acids should never be employed to clean tinware, because they attack the metal and remove it from the iron of which it forms a thin coat. We refer to articles made of tin plate, which consists of iron covered with tin. Rub the article first with rotten-stone and sweet oil, the same as recommended for brass, then finish with whitening and a piece of soft leather. Articles made wholly of tin should be cleaned in the same manner. In a dry atmosphere planished tinware will remain bright for a long period, but they soon become tarnished in a moist air.

To Clean Britannia Ware.—Britannia ware should be first rubbed with a woolen cloth and sweet oil, then washed in water and suds, and

rubbed with soft leather and whiting. Thus treated it will retain its beauty to the last.

To Clean Papier Mache and Japanned Wares.—Tea-boards, either of papier mache or of japanned iron, should never be washed with hot water, because the heat of boiling water is sufficient to crack the varnish on the surface, upon which the blackened coating of either the papier or iron will begin to peel off. When any liquid dries upon tea-trays or waiters which has in it something of a glutinous nature, water must be employed to wash it off, but whenever simple rubbing with soft linen removes any spots on japanned wares, water should not be used. Tea-boards are easily cleaned by the use of a few tea-leaves, when emptied out of the tea-pot; if tea-boards of japan or papier mache appear streaky, as if from grease, a little flour or whiting sprinkled over them, and rubbed off with a soft linen duster, will clean them. The fine polish of these wares is in their manufacture given by the use of olive oil, and the friction of the hand alone; hence any scratches on the surface, so slight as not to penetrate through the coating, may be removed by a similar application and means.

Another Way.—Rub on with a sponge a little white soap and some lukewarm water, and wash the ware quite clean. Never use hot water as it will cause the japan to scale off. Having wiped it dry, sprinkle a little flour over it; let it rest awhile, and then rub it with a soft dry cloth, and finish with a silk handkerchief. If there are white heat marks on the waiter or other ware, they will be difficult to remove. But you may try rubbing them with a flannel dipped in sweet oil, and afterwards in spirits of wine.

Another Way to Clean Papier Mache.—Waiters and other articles of *papier mache* should be washed with a sponge and cold water, without soap, and dredged with flour while damp. After awhile wipe off, and then polish with a flannel or silk handkerchief.

Cleaning China and Glass Ware.—The best material for cleaning either porcelain or glassware, is fullers' earth; but it must be beaten into a fine powder, and carefully cleared from all rough or hard particles, which might endanger the polish of its brilliant surface. It must be understood however that some requires more care and attention than others, for all is not equally well colored or tempered.

China and Earthenware should be washed in plenty of warm water and soap, rinsed clean in a second bowl of water alone, either warm or cold, should be then turned down to drain, and afterwards wiped dry with linen tea-cloths. Settlings of any liquids which have been suffered to dry up at the bottom of earthen vessels may be dissolved

generally by a little pearlash and water, or with soda instead of pearlash; either of these will also quickly remove any oiliness which may be on the surface of earthenware or porcelain. Neither porcelain nor earthenware will bear sudden immersion into hot water, when the weather is cold, without great danger of its cracking.

In Washing Glass the above caution is still more requisite to observe than in respect to china and earthenware. To put glass suddenly into boiling water in cold weather would be inevitably to break it. Glass should be washed in water moderately warm; and the quantity of water used should be abundant, and in proportion to the number of articles to be washed. When taken out of the water, each article should be at first turned down on a table or dresser, that the water may run off from them. Afterward they should be dried with a soft linen cloth, and, before they are placed for use, each should be polished with a clean soft skin of wash leather kept for the purpose. Glass should never be brought to the table with the dull linty surface which negligence in wiping would give it. For cut glass, the use of a soft brush may be requisite to polish it well; but if any brush or rubber of a harsh nature be applied, glass, which easily receives scratches on its surface, would lose irrecoverably its beauty and brilliance.

Glass discolored with the settlings of port wine, &c., may require more than common washing. A solution of soda will effect a solution of the coloring matter. A bottle brush is sometimes used to remove the settlings, but is liable to scratch the glass.

To Clean Plate.—Avoid the use of what are called “plate powders;” most of them contain quicksilver, which is very injurious. Boil one ounce of prepared hartshorn powder in a quart of water; while on the fire put into it as much plate as the vessel will hold; let it boil a short time, then take it out, drain it over the vessel and dry it before the fire. When you have served all your plate thus, put into the water as much clean linen rag as will soak up all the liquid. When dry, they will be of great use for cleaning the plate as well as brass locks and the finger plates of doors. When the plate is quite dry, it must be rubbed bright with leather. The use of gritty substances, however fine, should be avoided.

Plate Powder.—Finely washed whiting is one of the safest plate powders. To prepare this, mix some whiting up with water, and stir it well; then letting the whole remain a minute or two, pour off the white fluid into another vessel, and suffer the sediment of the part poured off to settle. This sediment will, when dried, be the fine-washed whiting desired, all the coarse gritty part having been left be-

hind in the first vessel. Whiting, in general, is fine enough without being washed; but this operation secures it from containing any particles of sand. It is by some persons applied to plate in its dry state, and rubbed on with leather. Others mix it with water, and lay it wet on the plate, and do not rub it off till it is dry.

Silver and Plated Ware should be washed with a sponge and warm soap suds every day after using, and wiped dry with a clean soft towel. Plate should be well cleaned, and have a bright polish; few things look worse than to see greasy looking epergne and streaky spoons.

Cleaning Silver Plated Articles.—White metal articles electro-plated with silver are now very common and great care is required in cleaning them when tarnished. No powder must be used for this purpose which has the least grit in it, or the silver will be scratched and soon worn off. The finest impalpable whitening should be employed with a little soft water in removing the tarnish. They are next washed with rain water, dried and polished with a piece of soft leather, some rouge powder or fine whitening, then finally rubbed down with the hand, which forms a most excellent polisher.

All violent rubbing should be avoided, together with the use, in cleaning it, of any ingredient which would wear the silver.

When tarnished, plated articles may be cleaned with fine washed whiting mixed with sweet oil. Warm water and soap, also, may be safely used.

Rouge Powder is much recommended by silversmiths; and though they find it very useful and effectual, yet, if used as often as plate requires cleaning in a family, the plate would suffer considerable wear.

The Sulphur contained in the sulphureted hydrogen gas, which exists sometimes in small quantity in the atmospheric air, is constantly acting upon silver, and produces a tarnish. On this account it is very desirable to keep all such articles not in daily use covered with wash leather, or with any soft material, to keep them as much as possible from the air.

Among the careless practices to be condemned is that of scraping off, with a sharp knife any substances adhering to plate. If in this practice the surface be scratched, the scratches cannot be removed, except by rubbing off the silver around until it is levelled to the indentations; hence the injury to plated goods especially, in which the silver is merely a thin surface.

To Keep Silver Bright.—*Godey's Lady's Book* directs that, silver, in constant use, should be washed every day in a pan of suds made of

good white soap and warm water; drying it with old soft linen cloths. Twice a week (after this washing,) give it a thorough brightening with finely powdered whiting, mixed to a thin paste with alcohol; rubbing longer and harder where there are stains. Then wipe this off, and polish with clean soft old linen. Silver, is cleaned in this manner, at the best hotels.

Egg Stain.—To remove the stains on spoons caused by using them for boiled egg, take a little common salt moist between the thumb and finger, and briskly rub the stain, which will soon disappear.

Medicine Stains may be removed from silver spoons by rubbing them with a rag dipped in sulphuric acid, and washing it off with soap suds.

To Remove Ink Stains from Silver.—The tops and other portions of silver inkstands frequently become deeply discolored with ink, which is difficult to remove by ordinary means. It may, however, be completely eradicated by making a little chloride of lime into a paste with water, and rubbing it upon the stains. Chloride of lime has been misnamed the "general bleacher," but it is a foul enemy to all metallic surfaces.

To Clean Knives and Forks.—Wash the blades in warm (but not hot) water, and afterwards rub them lightly over with powdered rotten stone wet to a paste with a little cold water, then polish them with a clean cloth.

Scouring Knives.—A small, clean, raw potato, with the end cut off, is a very convenient method of applying brickdust to knives, keeping it about the right moisture, while the juice of the potato assists in removing stains from the surface. A better polish can be got by this method than by any other, with less labor.

The ashes of hard coal unmixed with any from wood, are said to be a better article than Bath brick for scouring knives, forks, &c.

It is said to be a recent and valuable discovery that one of the best substances for cleaning knives is charcoal reduced to a fine powder, and applied in the same manner as brickdust is used.

To Remove Stains from Fine Cutlery.—Take the softest side of a razor strop, put rouge powder or crocus on it, and rub the cutlery rapidly with it. If the stains are rusted in, it may be necessary to send the articles to a cutler to be refinished.

Cleaning Knife Handles.—Ivory handles should be washed with a bit of sponge dipped in soap and water, or with a little spirits of wine and water; when a red wine or fruit stain shows itself on the

handles, it may be scraped off with a sharp knife without injuring the haft.

Silver and plated handles are cleaned like other plate and plated wares.

Ebony hafts should be cleaned with a little Florence oil, carefully wiped off.

When ivory handles turn yellow rub them with nice sand paper or emory; it will take off the spots and restore whiteness. The sand paper should be *very fine*.

Orange or Lemon Juice left upon a knife or other piece of iron, will, in a few days, produce a stain so nearly resembling that caused by blood, as to deceive the most careful observer; and not many years ago, in Paris, a man was nearly convicted of murder owing to a knife being found in his possession stained with what was pronounced by several witnesses to be blood, but afterwards discovered to be simply lemon juice.

Do not let knives be dropped into hot dish water. It is a good plan to have a large tin pot to wash them in, just high enough to wash the blades *without wetting* the handles.

Never put away plate, knives and forks, &c., uncleaned, or sad inconveniences will arise when the articles are wanted.

Cleaning Bottles.—There is no easier method of cleaning glass bottles than putting into them fine coals, and well shaking, either with water or not, hot or cold, according to the substance that fouls the bottle. Charcoal left in a bottle or jar for a little time will take away disagreeable smells.

To Clean Wine and Beer Bottles.—Perhaps no mode is so easy and effectual as to use small shot and water, agitating them thoroughly. If the mechanical action of the shot is insufficient to remove the hardened crust from the interior, as for instance, old port wine bottles, add a small quantity of pearlash or soda to soften the crust. Observe that no shot are wedged fast at the bottom and left in the bottle.

Decanters are formed of flint glass, which is much softer and more readily scratched than the common kinds, they therefore require a less rough treatment; in general, warm (not boiling) water, with the addition of a few pieces of coarse brown paper, and if requisite a little soda, will be found effectual; should greater force be required, a small portion of tow wrapped around the notched end of a moderately stiff wire, and used with a little strong soda, will be found sufficient. Sand or ashes should never be employed in cleaning decanters, as they roughen and totally disfigure the brilliant surface of the glass.

To Clean Wine Decanters.—Put in a little pearlash or soda, some cinders and add water. Shake them about well till clean, and then rinse them out thoroughly.

To Dry Decanters or Bottles.—After draining thoroughly, make them slightly warm, and blow in fresh air with a pair of bellows, or draw out the damp air with the mouth through a tube sufficiently long to reach nearly to the bottom. A piece of paper may be rolled up so as to answer for a tube. Many liquids are much injured by being put into wet bottles, and decanters put away wet, after having been cleansed, frequently become musty.

Cleaning Alabaster.—For this purpose there is nothing better than soap and water. Stains may be removed by washing with soap and water, then whitewashing the stained part, letting it stand some hours, then washing off the whitewash, and rubbing the stained part.

To Clean Coins.—Use dilute sulphuric acid; one part of acid in ten of water. If there are dates upon them this will bring them out.

Removing Stains and Marks from Books.—A solution of Oxalic acid, citric acid, or tartaric acid, is attended with the least risk, and may be applied upon the paper and prints without fear of damage. These acids, taking out writing ink, and not touching the printing, can be used for restoring books where the margins have been written upon, without attacking the text.

Another Way to Remove Ink from Paper. &c.—The process of thoroughly extracting all traces of writing ink, whether accidentally spilt or written in error is to alternately wash the paper with a camel hair brush dipped in a solution of cyanuret of potassium and oxalic acid; then when the ink has disappeared, to wash the paper with pure water. By this process cheques have been altered when written on "patent cheque paper," upon which it was supposed by a recent inventor to be impossible to remove writing.

To Clean Printed Paper and Picture Prints.—Fasten the paper to a board with button drawing pins, then wash it with water, in which is dissolved an ounce of carbonate of ammonia to every pint of water. This do with care, employing a camel's hair brush for the purpose, then rinse the paper well with plenty of fresh water. When dry, repeat the same process for the reverse side of the paper. Now wet the paper with water made sour with white vinegar. Finally, wet the paper with water containing a little bleaching powder, and again rinse with clean water; then dry it by exposure to air and sunshine. It will become white, excepting where printed. To stiffen the print

give it a coat of parchment size. Most valuable prints have been thus "restored."

To Restore Writing.—To restore obliterated writing on parchment, put the parchment into a vessel of fresh drawn spring water, and let it remain about a minute, then take it out and press it between two sheets of blotting paper, to prevent its crumpling. When it is nearly dry examine it, and if the writing is not restored, repeat the operation two or three times. If the fading is only the effect of time, you will, by this means, restore the writing to its pristine state; but if the ink has been removed by any chemical process, of course it cannot be restored.

Removing Ink from Photographs.—A correspondent of *Humphrey's Photographic Journal* says, that recently he had the misfortune to deluge the photograph of a deceased child with ink, whereupon the sympathizing editor sends the following formula and advice: Our readers may find it useful in similar cases. Make the following solution:—Oxalic acid, one drachm, warm water, one ounce. Dissolve and keep at a temperature of about 100° Fah. Pour water of the same temperature over the photograph several times, until the paper becomes thoroughly saturated and moistened. Next flow it with the above solution and rub it gently with a clean camel's hair pencil. The ink will gradually disappear; and as it disappears repeat the operation of washing with lukewarm water, and again flow with the acid. With patience and perseverance you will finally have the ineffable pleasure of seeing your little Charlie once more. As soon as the picture has been thoroughly restored and the whites are perfectly bleached, wash very carefully in several waters so as to remove every trace of the acid or the salt which it formed, which, if left, might produce iron molds.

Cleaning Hair Brushes.—As hot water and soap soon soften the hairs, and rubbing completes their destruction, use *soda* dissolved in cold water. Soda, having an affinity for grease, cleans the brush with very little friction. After well shaking them, stand them on the points of the handles in a shady place.

HOUSE FURNISHING AND HOUSEHOLD FURNITURE.

How to Choose a Carpet.—In selecting a carpet, the rule should be followed of selecting small patterns for small rooms. There is economy in this, as well as taste, because small patterned carpets are generally found the most durable. As a rule, a formal geometrical pattern is best for a carpet. It should be something which does not appear unnatural to tread upon. It is a mistake to put flowers, trees, or figures of birds or animals, into a carpet, for we do not walk on such things; far other are their purposes and uses. Sometimes a carpet is made to represent a picture or landscape, which is also a mistake, for it offends our notions of propriety to see such objects spread on a floor. In the formal pattern, all these defects are avoided. It is not unusual to walk upon ornamental pavements or floors, and we are not displeased at seeing varieties of similar ornaments reproduced in a carpet. Those persons who have seen the English House of Lords will remember that the carpet is nothing more than a small amber-colored star, on a deep blue ground, which, simple as it appears, harmonizes admirably with the superb decorations of the spacious edifice.

Another reason why a small pattern should be chosen is, that it suits best with the furniture of a room. The furniture must of course cover some portions of the carpet, so that if the pattern be large, there is so much confusion between what is seen and what is hidden, that a very disagreeable effect is produced. With a small pattern, on the contrary, the concealing of a portion by the furniture does not spoil the effect of that which remains uncovered. In general suitability the Turkey carpet is the best. It is adapted for almost any style of furniture, and no one ever gets tired of it, owing to the perfect naturalness and harmony of the pattern. Let it be remembered, that neither on the wall or on the floor should there be any one strong predominating color which injures the effect of everything else in the room. As a rule, the color of the carpet should be darker than that of the walls. Very light patterns are most suitable for bed rooms.

The size of the patterns should be suited to that of the apartments. Large patterns are only fit for large apartments, and small patterns are more easily mended: those with geometrical figures have this advantage, that pieces may be let in where parts are worn, which is more difficult in irregular patterns. It is also economical to have several

of the carpets in the house of the same pattern, as those of bedrooms, passages, &c., that one may mend another.

It has been observed "that Brussels carpet, although estimated by the beauty of its design and coloring, ought to possess another very essential property, viz: durability, a reputation for which it has deservedly obtained; but the depreciating consequences of competition in price have lately somewhat diminished this favorable opinion." Durability arises more from the quantity and quality of worsted on the surface, than from the ordinary operations of the weaver. In the best qualities, the worsted warp-threads usually appear on the surface, in sets of threes; each set occupying the space between the linen warp-threads or chain, and of which threads there are about seven to an inch; this closeness of arrangement maintains the loops of worsted nearly upright, giving thereby greater elasticity, with a sustained actual resistance to the effects of pressure and wear. Inferior carpets usually have a reduction in the quantity of surface worsted; produced by dropping loops, and various other processes tending to the same end. The quality of worsted is not less important than the quantity; indeed, a carpet made of good worsted, in a smaller quantity, is to be preferred to one crowded with an inferior material. Good worsted is bright, evenly twisted, free from loose hairy fibre, soft to the touch, and possesses considerable elasticity. The properties of dyes are deserving of consideration; but, as they are subordinate to the more important effects of design and coloring, little can be here adduced with advantage. The carpet manufacturers and dealers of the old school, who felt pride in the durability of their fabrics, would never recommend a carpet having a preponderance of claret or morone. Nevertheless, claret—although the dye is not wholly permanent, and deteriorates the quality of the worsted—has been found too useful to be dispensed with, and of late it has therefore been extensively preferred. Crimson and scarlet are very durable colors; Greens are sound; and brown, buff, and fawn colors may be deemed rather less permanent.

The color of carpets should be well attended to; and much taste is required to choose patterns and colors that are the most suitable for the apartments where they are to be put down. In this fashion will generally be followed; but it is very necessary to consider also the nature and use of the apartment, and style of the furniture. In the richest carpets, intended for the best apartments, the style is usually gay and splendid; for parlors, the Turkey and Persian patterns, having a richness of effect without any conspicuous or distinct figures, are preferred; and for sitting rooms and libraries, something

of a quiet, though not too dark character, is preferable. Carpets with only two colors are often very elegant; but they easily show any stains on them, and consequently do not wear so well as when there is a sprinkling of a few more colors intermixed, the spots of color assisting to disguise those arising from stains. It should be observed, likewise, that some colors are more liable to fade than others.

Decidedly light colors throughout never have a good effect on the floor, nor look clean and bright after a little use. Many gaudy colors are not now in demand. The colors, all middle tint, that is, neither light nor dark, make a dull dingy looking carpet even when new. White in a carpet in a short time gives a dirty appearance to the whole.

For a carpet to be really beautiful and in good taste, there should be as in a picture, a judicious disposal of light and shadow, with a graduation of very bright and of very dark tints; some almost white, and others almost or quite black.

The most truly chaste, rich and elegant carpets are those where the pattern is formed by one color only, but arranged in every variety of shade. Two colors only, with their dark and light shades, makes a handsome carpet. A very light blue ground, with figure of shaded crimson or purple, looks extremely well; so does a salmon color or buff ground, with a deep green figure; or a light yellow ground, with a shaded blue figure.

If you are buying a carpet for durability choose small figures. In buying a carpet, as in everything else, those of the best quality are cheapest in the end,

Laying Down Carpets.—In laying down carpets, the most complete way is to fit them into all the recesses of the room; but this is also the most expensive, since not only the carpet seen when laid down is charged for by the upholsterer, but likewise all that is cut to waste, which in some apartments is a good deal. Where economy is an object, the carpet may be square or oblong, according to the shape of the room, but not fitted into recesses; and the boards round the sides may be left bare, or be painted in oil, or covered with oil cloth, &c. With respect to the economy of not fitting carpets to rooms when square or oblong, they can have the wrong side turned up for a time to save the other side, which cannot be done when the carpets are fitted in; and they may likewise be reversed in their position, which will make them wear more equally. Thus a square carpet may have its position changed eight times, and an oblong one four times; whereas a carpet fitted to the room can not be altered in its position, ex-

cept the apartment should be exactly symmetrical, which is seldom the case.

Care of Carpets.—In the wear of carpets much depends upon the manner in which they are kept clean : if the dust is suffered to accumulate too long, they require to be beaten with much force, which breaks the threads. In some cases they are scoured but this is very apt to injure their texture. It is important to the preservation of carpets that the boards of the floor be well laid ; if they have not been properly seasoned when they were laid down, they sometimes turn up at the edges, and occasion ridges, which will cut the carpets, and cause them to wear there soonest. As soon as a carpet begins to wear, its position in the room should be altered, that every part may be worn alike. Thick and heavy carpets do not require to be nailed down ; but those that are thin usually require nailing in sitting rooms, otherwise the edges curl up and are inconvenient ; but if they are well nailed at first, and stretched, after a month or two they will lie flat with fewer nails, so that they may be easily taken up to be beaten. The air of a sitting apartment is materially injured by the dust being suffered to accumulate under the carpet. Every time it is swept a cloud of dust arises and mixes with the air ; and, although this is scarcely visible, it proves injurious to the lungs. Carpets in bedrooms are seldom nailed down, and never ought to be, that they may be frequently beaten and brushed.

Stair Carpets.—Stair carpets should always have a slip of paper put under them at and over the edge of every stair, which is the part where they first wear out, in order to lessen the friction of the carpet against the boards beneath. The strips should be within an inch or two as long as the carpet is wide, and about four or five inches in breadth, so as to be a distance from each stair. This simple plan, so easy of execution will, we know, preserve a stair carpet half as long again as it would last without a strip of paper.

Mending Carpets.—Those who would be thrifty should have their carpets mended with the needle in time, when they begin to wear ; and this may be done somewhat in the manner of embroidery, making use of proper colored worsteds to make out the pattern.

Floor Oil Cloths.—This is better for being kept for considerable time before it is used, the paint getting harder.

Tables.—When purchasing, get two alike so that they will exactly match together when one is not large enough.

To Make Feather Dusters.—Very neat dusters can be made by taking the curved feathers of chickens from the neck and elsewhere,

and fastening them neatly to the end of a tapering pen holder, or other handle, and then adding a neat finish with a bit of morocco. By a little tasteful arrangement of the parts, these dusters are not only useful and ornamental in the house, but may be sold at the shops.

Corn Husk Beds.—Exclude all the outer and stiffer husks, allowing none to be put into the bed save the softer and smaller ones. Some strip them with a fork, others prefer to use them whole. Running them two or three times through a threshing machine makes them very soft and nice.

Husks versus Feathers.—The *Oneida Community Circular* published by the Shakers at Oneida, N. Y., contains the following :

Reader, did you ever sleep on a husk bed? No! Then let me say to you confidentially, that a husk bed is, according to my experience and judgment for many years, just the nicest and cleanest thing in the world to sleep upon. For my own use, I put the husks into two ticks, the upper one not quite as full as the under one, making it much easier to adjust or even up when the bed is made. The under tick can be filled quite full, making it elastic, requiring no daily adjustment, but will remain for months as even as a hair mattress. Once, and sometimes twice a year, I have taken them out and emptied from the ticks upon a clean grass plot, where they are raked open and stirred up, shaking the fine dust from them that naturally accumulates from the friction they undergo in daily use. A sprinkling of water on them while thus spread out will cause them to curl, making them almost as light as feathers. They should be shaken up several times a day, that the action of the sun and air may thoroughly penetrate them. If allowed to remain out of doors over night, a heavy dew answers all the purposes of watering them. When thoroughly dried and aired return them to the ticks—which you have probably washed—and you have a bed as good as new once in six months or a year, as sweet as new-mown grass, as comfortable as any feather bed, and decidedly more agreeable to those who appreciate good air in a sleeping room. In making up the bed, a thick comfortable, or something equivalent, should be placed over the bed before the sheets are put on, for the benefit of those whose skin is tender from ill health or other causes. The husks should be entirely free from hard substances. Husk beds thus managed, will last for years, by occasionally adding a few pounds to keep the quantity good.

I have used nearly all kinds of materials that have been proposed as substitutes for feathers, and must render my verdict in favor of husks. The cost of good clean husks is about one-eighth of the cost

of feathers ; and, as to sweetness and healthiness, there is no comparison. The animal odor attached to feathers, is very offensive indeed to many. The raising of geese, too, is very troublesome business, to to say nothing of the expense and uncleanly habits of the hissing, mischievous bipeds.

How to Keep Warm of a Cold Night without enough Bed Clothes.—Paste enough newspapers together to make a paper sheet or blanket of the size of a bed-blanket, and spread it between any two articles of bed clothing. If you have never tried it you will be astonished at the comfortable difference. Paper, however thin, has no pores ; therefore, air cannot pass through it ; consequently it retains air much better than woven sheets or blankets ; it keeps cold air out of the bed and the warm air it retains.

Straw Beds.—Oat straw is the best for filling beds. It should be changed once a year.

Beds of Beech Leaves.—These are highly recommended. Sir Thomas Lander, speaking of husk beds, says : These beds have the advantage of being soft as well as elastic, and we have always found the sleep enjoyed on them to be peculiarly sound and restorative ; but the beds made of beech leaves are really no whit behind them in these qualities, while the fragrant smell of green tea, which the leaves retain is most gratifying. The only objection to them is, the slight crackling noise which they occasion when a person turns in bed ; but this is no inconvenience at all, or if so, it is an inconvenience which is much overbalanced by the advantages of this most luxurious couch. It is said that they will not harbor vermin. The leaves should be gathered on a dry day, and then perfectly dried before using.

Our Best Parlors.—On this subject Ik. Marvel very sensibly discourses as follows : Don't keep a solemn parlor, into which you go but once a month, with the parson or sewing society. Hang around your walls pictures which shall tell stories of mercy, hope, courage, faith and charity. Make your living-room the largest and most cheerful in the house. Let the place be such that when your boy has gone to distant lands, or even when, perhaps, he clings to a single plank in the lonely waters of the wide ocean, the thought of the still homestead shall come across the desolation, bringing always light, hope and love. Have no dungeon about your house—no room you never open—no blinds that are always shut.

The Home of Taste.—How easy it is to be neat and clean. How easy it is to arrange rooms with the most graceful propriety. How easy it is to invest our houses with the truest elegance. Elegance

resides not with the upholsterer or draper ; it is not put up with the hanging and curtains ; it is not in the mosaics, the carpeting, the rose-wood, the mahogany, the candelabra, or the marble ornaments ; it exists in the spirit presiding over the chambers of the dwelling. Contentment must always be most graceful ; it glows serenely over the scene of its abode ; it transforms a waste into a garden. The homes lighted by these intimations of a nobler and brighter life may be wanting in much which the discontented desire ; but to its inhabitants it will be a palace far outvieing the oriental in brilliancy and glory.

HOUSEKEEPING.

MANY true-hearted, valuable women are greatly injured by doing without help. Their husbands are in comfortable, thriving circumstances ; but they are more than economical—they are avaricious, and virtually compel their wives to become slaves for the sake of saving money ! The husband, worth his thousands, requires the partner of his bosom and the mother of children, much of the time in feeble health, to cook, and wash, and sew for a large family ! With little time for repose, and burdened with care, she drags out a wearisome, miserable life, and, perhaps, sinks prematurely into the grave ! The man who exacts or allows this is not a husband—he is an execrable tyrant. But there are mitigating circumstances in many cases with all the appearances against the man. Perhaps the woman herself is more to blame than he. He may be anxious to procure help when his wife will not consent. From motives of mistaken economy, or from the force of habit, she toils on and rejects all relief. The confinement is none the less real nor objectionable because self-inflicted. She ought not thus to overtax or waste her energies. Careful management and a correct appreciation of her own duty and rights, will enable her to avoid it. If it were true that such unreasonable labor is just economy, it would be infinitely better to be worth so much less money than to shorten life or embitter its fleeting hours while they last. But it is evidently not true. She who wastes her strength and destroys her health by excessive labor, is sure to bring upon her family an amount of expense for sickness and loss of time, which will more than equal the sum saved by doing without help.

The man who loves his wife should promptly terminate this exhausting struggle. The woman who loves her family should immediately

correct this grave error. Be industrious; scorn no honest, useful labor; but do not compel yourself, for the sake of temporary savings, to work beyond your strength—to work when, from sheer fatigue, you feel as if you could hardly stand upon your feet. Do not consent to use every moment of your brief and precious life in mere drudgery, when the cultivation of your mind and heart for the proper discharge of your social duties is a matter of so much importance. Do not deny yourself the time to meet your friends and enjoy their company. Let both husband and wife agree that habits of industry and social comforts shall harmonize, and at any sacrifice arrange domestic affairs accordingly.

If it is possible you must have help, and the management of servants is a problem. Perhaps more real trouble arises from a want of skill at this point than from any thing else. Here we have only room to say that the safe course lies between the extremes. Undue familiarity will certainly lead to contempt and general disobedience to orders. It is to be regretted that what would otherwise be desirable kindness and deserved sympathy, is so likely to be responded to by impudence and dishonesty. On the other hand, it is most evident that imperious airs, persecuting cruelty, and everlasting fault-finding will make bad servants of good ones—would, indeed, finally ruin the temper of almost any person, and lead to utter desperation. Real dignity, with reasonable patience and genuine kindness, is the true philosophy.

But you can not rely upon servants for the results you desire. Many of them we grant are worthy and skillful, but generally it is otherwise. The reasons are various. They have been reared in poverty perhaps, amid confusion and selfishness, where neither the means nor instruction required to prepare them for their place could be obtained. They have from childhood been negligent of the laws of cleanliness and order. How could they be reasonably expected to reach or at all appreciate the standard you set for them? But the most serious fact is that they are generally without inducement to make the exertions which a high degree of excellence requires. Their compensation is generally small, their treatment frequently contemptuous and severe, and they must utterly despair of the blessings of good society! We pity the servants. We would ameliorate their condition, were it possible. It is simply impossible, as a general thing, to secure the neatness, order, and economy so fundamental to domestic happiness, by entrusting the kitchen entirely to servants. What, then, remains?

We answer, be yourself a practical housekeeper; understand every

particular of kitchen labor ; give it your personal attention, and occasionally, if not regularly, do some parts of it with your own hands. This will remove the most annoying trials of housekeeping, save you from your severest temptations to bad temper and unbecoming language, and convert the most ordinary portions of your daily food into luxuries. It will promote the truest economy and perhaps save your husband from bankruptcy. At least, should any such calamity occur, it will leave the responsibility where it belongs.

God has made physical labor a necessity. Without it the tone of the whole system sinks, and disease takes the place of health, feebleness of strength, softness of firmness, dullness of vigor, indolence of activity. These are stern facts. The sad condition of society is abundant and painful evidence of this. The truth is, that the average period of human life is shortened more by indolence than by disease. Free and thorough action gives health to the circulation, color to the countenance, hardness to the muscle, light to the eye, and endurance to the nerves. Reasonable labor is the very best physician ; it is more salutary against vice than the penitentiary or the gallows ; it allows no time for mischief ; it removes the apologies for crime ; it educates the self-respect and the self-reliance of man and woman ; it stands up with the Bible and the pulpit, to battle with sin, to purify the moral atmosphere, and realize the idea of God in the creation.

You have perhaps been taught in the gymnasium that you must exercise every muscle in the body, and the skill of masters has been put to the test to invent methods of muscular action which would most effectually do this ; but we venture the assertion that no inventions have yet, in perfection, reached the adaptation of the kitchen. Only just in proportion as your exercise approaches the methods of honest labor, does it conform to the true physiological laws and accomplish its purpose.

A good housewife is one of the first blessings in the economy of life. Men put a great value upon the housewife qualifications of their partners after marriage, however little they may weigh with them before ; and there is nothing which tends more to mar the felicities of married life than recklessness or want of knowledge in the new housekeeper of the duties which belong to her station. Men admire beauty, and order, and system in everything, and men admire good fare. If these are found in their dwellings, and are seasoned with good nature and good sense, men will see their chief enjoyments at home ; they will love their homes and their partners, and strive to reciprocate the kind

offices of duty and affection. True mothers will not fail to instruct their daughters in the qualifications of married life.

We will give to intellect, to immortality, to religion, and to all virtues, the honor that belongs to them. And still it may be boldly affirmed that economy, taste, skill and neatness in the kitchen, have a great deal to do in making life happy and prosperous.

Nor is it indispensably necessary that a house should be filled with luxuries. All the qualifications for good housekeeping can be displayed as well on a small scale as on a large one. A small house can be more easily kept clean than a palace. Economy is most needed in the absence of abundance. Skillful cooking is as readily discovered in a nicely baked potato, or a respectable johnny-cake, as in a nut-brown sirloin or a brace of canvass backs.

Domestic economy is a science—a theory of life, which all sensible women ought to study and practice. None of our excellent girls are fit to be married until they are thoroughly educated in the deep and profound mysteries of the kitchen.

The kitchen of an American lady is her throne room, where she produces the greatest results, with the slightest discomposure.

The most prominent among the temporal things to make life pleasant is to be within the walls of a well ordered house—not conspicuous for finery or costliness, but by the fitness, its air of neatness and content to all who enter to enjoy its comforts. The woman who does not make this grand item in her routine of duties, has not learned the true dignity of her station; does not enjoy the blessings of this life, and indirectly despises her family and the Word of God. “She looketh well to the ways of her household,” was spoken by the wisest man that ever lived, and will be told as the memorial of all those noble women who have been eminent for “looking well” to the ways of their households.

Without good domestic economy there is very little personal comfort, and not much prospect of happiness, either in one’s self or the relations, respectively of husband and wife, parents and children. All success requires order, method, and continued attention to objects and ends; in fine, well regulated domestic economy.

The greatest danger to our daughters in the present time is the neglect of domestic education. Not only to themselves, but to husbands, families, and the community at large, does the evil extend. By far the greatest amount of happiness in civilized life, is found in the domestic culture and habits of the wife and mother. Let our daughters be intellectually educated as highly as possible; let their

moral and social nature receive the highest grace of vigor and refinement; but along with these, let the domestic virtues have a very prominent place.

We cannot say much about our daughters being hereafter wives and mothers, but we ought to think very much of it, and give the thought prominence in their education. Good wives they cannot be, for men of intelligence, without mental culture; good mothers they cannot be without it; and more than this, they cannot be such wives as men need, unless they are good housekeepers, without a thorough and practical training to that end.

Our daughters should be practically taught to bake, wash, sweep, cook, set the table, and do everything appertaining to the order, neatness and economy and happiness of the household. All this they can learn as well as not, and better than not. It need not interfere in the least with their intellectual education, nor with the highest degree of refinement. On the contrary, it will greatly contribute thereto.

Only let that time which is worse than wasted in idleness, sauntering and gossip, frivolous reading, and various modern female dissipations, which kill time and health, be devoted to domestic duties and education, and our daughters would soon be all that the highest interests of society demand.

A benign, elevating influence would go forth through all the families of the land. Health and happiness would now sparkle in many a lustreless eye, and the bloom would return to beautify many a faded cheek, and doctor's bills would give place to bills of wholesome fare.

MISCELLANEOUS FOR HOUSEKEEPERS.

Kitchen Odor.—A skillful housekeeper says that the unpleasant odors arising from boiling hams, cabbages, &c., is completely corrected by throwing whole red peppers into the pot—at the same time that the flavor is improved. We have heard that pieces of charcoal will produce the same effect, but we have not seen it tried.

Kettles are cleaned of onion and other odors by dissolving a teaspoonful of pearlash or saleratus in water and washing them.

Zink and Lead Vessels.—Zinc vessels should never be used for keeping any fluids intended for alimentary purposes, for Vauquelin proved, fifty years ago, that such will contain, after a short time, a considerable quantity of zinc in solution, and it is well known that the

smallest amount of zinc will cause violent spasmodic vomiting. So is there always danger in the use of lead for culinary purposes.

Marks of Hot Dishes on Varnished Tables.—Hot dishes sometimes leave whitish marks on varnished tables, when set, as they should not be, carelessly upon them. To remove it, pour some sperm oil upon the spot, and rub it dry with a cloth, and the white mark will disappear, leaving the table as bright as before.

Shut the Door.—Through the open door (one yard wide and two yards high,) of a warm room on a cold day, a cubic yard of warm air passes out per second through the upper half of the opening, and a cubic yard of cold, damp and chilling air comes in per second through the lower half. *Sixty cubic yards of warm air lost every minute!* This is better than no ventilation, but we prefer it some other way, and reiterate, "*Shut the door.*"

Creaking Doors.—A bit of soap rubbed on the hinges of doors, will prevent their creaking.

Ice on Windows.—Windows are kept free from ice by painting the glass with alcohol with a brush or sponge.

Clothes in Windows.—We may conclude that a housekeeper is a little too prodigal of his clothes when we see them filling holes in his windows.

Old Kid Gloves.—An old kid glove makes excellent lacing for securing small belts on sewing machines and other places. Cut the gloves in strips half an inch wide and roll them up tight.

Rags.—Probably few know the full value of rags in an economical point of view. Rags of any fabric shred fine like carpet rags, thrown loosely together, and then spread evenly into a tick the desired thickness, and tacked like hair, cotton batting, &c., will make a good mattress, or cushion for chairs, lounges, cribs, wagon-seats, or even beds. They are almost as good as hair, and better than cotton batting. Care should be taken to spread them so, that they will be the same thickness throughout when pressed down. When they are part woolen or heavy rags, spread each kind over the whole surface; or otherwise, spread the thick ones thinner, as they will not press down so much as the same bulk of light ones. The remnants after cutting carpet rags, are, a large share of them, generally fine enough, and only need freeing from dust; this can be done by pouring them slowly from one basket into another, out of doors, in a slight breeze. Heavy hems or seams should be thrown out. The ravelings of old worn-out carpets are good, if only well cleaned.

Linen rags should be carefully saved, as they are very useful in sickness. If they are dirty, wash them and scrape them into lint.

A Convenient Substitute for a Cork Screw.—When the latter is not at hand, use a common screw, with an attached string to pull the cork.

Cutlery.—Dampness corrodes, and rust, though removed, leaves a spot on the polish of costly cutlery.

Mold.—The mold on decayed fruit, stale bread, moist wood, &c., is shown by the microscope to be plants, bearing leaves, flowers and seeds, and increasing with incredible rapidity; for in a few hours, the seeds spring up, arrive at maturity, and bring forth seeds themselves, so that many generations are produced in a day.

Size for Attaching Paper to Walls.—None but the best should be used. Many a fever has been caused by the horrible nuisance of corrupt size used in paper-hanging in the bed-rooms. The nausea which a sleeper, in such a case, is aware of, on waking in the morning, should be a warning needing no repetition. Down should come the paper at any cost or inconvenience.

Burglar Alarm.—If you want a burglar to wake you up, put your wash-basin under the door-lock, and draw the key half out; then the slightest touch from the outside imitates a racket among the crockery, opportune to an extreme.

To Prevent Burglaries.—A great proportion of the hotel robberies and burglaries on stores and private houses, are committed by picking door locks with a skeleton key, or where the key has been left in the door, by turning it with a nippers or “outsider.” To frustrate the efforts of burglars in these attempts all that is necessary is to simply lock the door, leaving the key in the lock, and passing through the handle of the key both ends of a piece of wire, bent in the shape of an elongated U, and suspended from the door-nob. The key being in the lock prevents the use of a “skeleton,” as does the wire the use of an “outsider.”

Threading a Needle.—Persons of defective sight, when threading a needle, should hold it over something white, by which the sight will be assisted.

The Meaning of the Number on Spools of Thread.—It is the number of hanks to the pound; each hank measuring 840 yards.

Knitting Mittens.—Cast twenty-six stitches on each needle. Rib two inches two and two. Commence the thumb by taking two stitches as seam stitches and widening two stitches between these two seam stitches. Knit three rounds between each widening until you have twenty; take these twenty off for the thumb make twelve stitches,

then decrease every other till only three of the increased stitches remain. Knit a little more than an inch plain. Now for the finger; take off twenty stitches, make twelve, and knit the same as at the thumb; knit about an inch and a half plain, then narrow every sixth stitch; knit six rounds, then every fifth, and five rounds, and so on. Then take up the finger, narrow to twenty-nine stitches, make the finger a little shorter than the mitten; now the thumb, reducing the stitches to thirty.—*Cor. Boston Post.*

To Prevent Articles of Steel or Iron from Rusting.—Oxygen is abundant in the composition of water and atmosphere; and that quicklime has an astonishing affinity for it is evinced by the practice of using a little powdered lime, tied up in muslin, to beat out a minute portion of dust on the surface of polished steel or iron goods, such as fire irons, fenders, and fronts of stoves of a superior quality, when not in use, to prevent their rusting. A more delicate instance is that of the manufacturers of needles, watch springs, cutlery, &c., who generally put a small packet of quicklime in any box or parcel of polished steel goods they may be sending to a distant customer, or with goods which they may put away as not likely to be wanted for some time, as security from rust. The following is very different, yet bearing upon the same principle: When bricklayers leave off work for a day or two, as from Saturday till Monday, they push their trowel in and out of the moist mortar, so that the bright steel may be smeared all over with a film of mortar, finding this plan an effectual remedy against rust.

To preserve bright steel from rusting, smear it over with hot melted mutton suet, and before it cools dust some powdered unslacked lime from a muslin bag over the hot suet.

Solvent of Putty and Paint.—Soft soap mixed with a solution of potash, or pearlash and slacked lime, mixed with sufficient water to form a paste, is an excellent solvent for old putty and paint. Either of these lald on with an old brush or rag, and left for some hours, will render the putty or paint easily removable.

HOUSEHOLD ORNAMENTS AND AMUSEMENTS.

How to Have a Living Window Screen.—Fit a moveable shelf to the window sill, and erect upon that a trellis of sticks and wire of such size and shape as suit the fancy. Place one or two pots of ivy

upon the shelf and train the vines to the trellis. During summer it may be placed outside.

To Make a Changeable Fire Screen.—Draw a landscape on paper, with India Ink, representing a winter scene, or mere outline, the foliage is to be painted with muriate of cobalt for the green, acetate of cobalt for blue, and muriate of copper for yellow, which, when dry, will all be invisible. Put the screen to the fire, and the gentle warmth will occasion the flowers, &c., to display themselves in their natural colors, and winter be changed to spring. When it cools, the colors disappear, and the effect can be reproduced at pleasure.

A Beautiful Parlor Ornament.—*London Society* gives us a beautiful device to fill a grate or fireplace in summer—that of a fender basket for moss and flowers. The basket may be of wicker-work to fit the front of the fireplace, like a fender, the ends to rise slightly, and the front low or only rounded up in an ornamental fashion and a zinc or tin tray fitted within it. The space behind it is to be filled with a square of looking glass, which, when the basket has received its bedding of moss and groups of flowers, will give all the charm of a cool and watery image. Flower pots, with growing plants, can be set in these baskets, the pots being covered with moss; lilies, ferns, roses and other bright, sweet plants and blooms will make a cheerful, pretty house garden, especially in cities where there is no room out of doors.

Bulbs in Dishes.—When it is desirable to ornament a stand or table with bulbs, you may use any deep vessel, such as a salad bowl or tureen, and fill it up two or three inches with sand, and all the rest of it with fine green moss. Place the bulbs half-way down in the moss. Hyacinths, for this purpose, should be selected to grow the same height. La Mu de Cœur, red, and the same name blue, are dwarf. Place them alternately close to the edge, and get an early white for the center, but according to the size of the vessel select your bulbs. Water freely, for they must not dry. When the roots reach the sand they will grow strong; but they will do without sand if well supplied with water.

Sweet Potatoes in Place of Hyacinths.—A curious as well as simple and interesting experiment may be performed in the following manner: Take a sweet potato, place it in the mouth of a transparent jar so that it fits loosely, and keep it in its place by putting pins in it. Fill the jar with water and set it where the sun can shine on it, or in a place where the temperature is quite even. Almost any place in the house will do, as in a window where it gets the light. The progress

will at first be slow ; replenish the jar with water as the potato absorbs it, keeping the water up to the middle of the potato, and soon roots will appear from the part in the water. From this point its growth is quite rapid, the roots striking downward ; finally it begins to sprout from the top, green leaves appear, and it continues to grow like a climbing vine, attaining a yard in length, and making a fine plant. I have started several in this manner, and now have one doing well.

Another Beautiful Ornament.—A carrot head cut off a little below the top, and put in a basin of water, puts forth leaves, and makes a handsome ornament.

Ornamenting Boxes, &c. with Leaves.—Prepare a box any shape you desire, put on a coat of black paint, when perfectly dry rub it down with pumice stone until smooth, add two more coats of paint, the last of best carriage paint, letting it stand to dry between each coating. Then line your box according to taste.

Gather yellow and shades of brown leaves, (no green ones,) place them perfectly flat in a book, or between the folds of paper, put a weight upon them, and keep them thus until the dampness is all abstracted. Prepare a solution of gum arabic, gum the leaves and place them upon the box, not in groups as it destroys the effect. Have ready a wad of cotton tied up hard in a piece of black silk, put them on carefully until every part is fastened down. Cut out butterflies from yellow paper, mark them off, and place them among the leaves. When all is done, prepare a solution of izinglass, not too thick, take a soft brush and brush it over, rubbing it all one way. Let stand until perfectly dry, then varnish with three coats of the best copal varnish, letting it stand each time until dry. This makes a very pretty ornament with but little expense.

To Preserve Flowers a Fortnight.—As much nitrate of silver as can be held between the thumb and finger, if thrown into a vase of water, will, it is said, preserve flowers for a fortnight.

How to Make the Silver Tree.—Buy five cents worth of oxalic acid and fifteen or twenty cents worth of nitric acid. Fill the jar with water. Cut the sheet iron. Fill and cork air tight.

An Interesting Experiment.—It is said that if you fasten a nail or key to a string, and suspend it from your thumb and finger, the nail will oscillate like a pendulum. Let some one place his open hand under the nail, and it will change to a circular motion. Then let a third person put his hand upon your shoulder, and the nail becomes in a moment stationary. We have not tried it.

How to Put an Egg in a Bottle.—To accomplish this seemingly incredible act requires the following preparation: You must take an egg and soak it in vinegar, and in process of time its shell will become quite soft, so that it may be extended lengthwise without breaking; then insert it into the neck of a small bottle, and on pouring cold water upon it, it will assume its former figure and hardness. This is really a curiosity, and baffles those who are not in the secret to find out how it is accomplished.

Illustrated Eggs.—Take a common hen's egg and lay the letters or any design you please on in wax, then place the egg in acid or some substance which eats the shell away from the wax, after which the wax is removed and a very nice raised letter remains. Two minutes in a bath of hydro-chloric acid will be sufficient.

Luminous Writing.—Place a small piece of solid phosphorus in a quill, and write with it upon paper. If the writing then be taken to a dark room, it will appear beautifully luminous.

Italian Shadows.—This very laughable amusement requires nothing in the way of preparation, except a white sheet suspended between the audience and the performers, and a candle or lamp placed upon the floor, so as to illuminate the screen. The performers pass between the lamp and the screen, so as to throw their shadow upon it, and in this manner an infinite variety of grotesque scenes may be exhibited. The assumption of female attire by some of the performers will greatly increase the ludicrous effect of the shadows.

CARE OF GOLD FISH AND CANARIES.

GOLD FISH require great care and but little food. Fresh river water should be given them every day. Small worms which are common to the water suffice for their food in general. Shaking of the vessel which contains them, strong swells, and even a loud noise, often destroys them.

Bread crumbs and small flies are usually given for food to gold fish; a little duckweed may also be placed in the globe. The room these delicate creatures are kept in should be of a genial temperature, as they come originally from a warm climate. The water should be changed daily, and, in cold weather, should not be replaced in a cold state, but be allowed to stand in a warm room for an hour previously; in summer, that precaution is unnecessary. They thrive best

when the temperature of the water is about eighty degrees. Some people put a little moss in the globe.

A correspondent of the *Scientific American* says: If you will regulate the number of your fish to the quantity of water, (say two small fish or one good sized one to a gallon of water,) and if instead of cleaning the sides of the tank, allow the green confervæ to grow, you will find that nature will provide better food for the fish than anything you can give them. He adds: Such is my experience; but the writers say that "feeding is a very important matter;" it should be performed twice or thrice a week at least. Bread and hard-boiled eggs are good staple food; but flies, small spiders, and any soft insects will be greedily accepted and demolished in a general scramble. Food not eaten should be immediately removed, or the water may get tainted; and care should be exercised not to overfeed at any one time, and not to feed too frequently.

This correspondent states that he uses a common pine tank, keeps it in an exposed situation, and changes the water but twice a year. On the inside of the tank is a green, slimy moss.

Another says: Gold fish require food, though very little. The best is to take a *white* wafer of small size, every two or three days, grind it to powder and throw it into the basin. This will be plenty for five or six fishes. A great deal of care ought to be taken not to give more, as it may kill the fish, by their eating too much of it. White wafers are made of flour and water.

The Chinese, who thoroughly understand the care of gold fish, feed them small balls of paste, also lean pork, dried in the sun, and reduced to a very fine powder.

Canary Birds.—These pretty little things are like meaner objects, often covered with lice, and may be effectually relieved of them by placing a clean white cloth over their cage at night. In the morning it will be covered with small red spots, so small as hardly to be seen, except by the aid of a glass; these are the lice, a source of great annoyance to the birds. Bathe frequently, keep the cage clean, and put sand mixed with anise seed on the floor.

MUSIC HINTS.

Use and Preservation of the Piano Forte.—If the piano forte be the instrument of use, bring it out from the wall, so that a free space be

before you when you sing or play. Never sing up against a wall if you can help it, or subject your friends to this sore trial. Moreover, never lumber a piano with music and books; it is inartistic. Above all keep your piano in tune. If an instrument is worth having, it is worth being kept in good order. You cannot have a piano long out of tune without getting your ear out of tune, and, if a singer, your voice. The Erard grand pianos of New York are all kept in order by one accomplished tuner. For twelve dollars a year he tunes once a month or oftener if necessary. Such an arrangement should be made for pianos of every make. It improves them, and they last the longer for it. A very awkward accompaniment for the piano forte is the piano stool. It is clumsy and heavy to move; has a special facility for upsetting; the screw is often in a crippled state; and, at best, it is but an insecure, uncomfortable, and shaky contrivance. A seat of far greater convenience and elegance at the piano, particularly with the present flowing style of ladies' dresses, is an ottoman shaped seat somewhat long, like an organ bench, but tastefully modelled. It might be upholstered, though it were better not. It should, of course, be made for the purpose, and of the right height. The most comfortable off-hand or improvised seat is a cane chair; and, by the way, let us suggest to gentlemen never to sit on a piano stool. The dignity of but few men is equal to the situation of a perch on such a tripod, with the coat tails hanging down behind; a chair, by all means!

To those about to purchase pianos, we will say that those made by reliable and well known makers, no matter how high their price may be, are in reality the cheapest instruments in the end; and to those possessing pianos, that freedom from artificial heat, cleanliness in preserving them from moths, and regular tuning, are requisite to keep their instrument in good order for enjoyable use.

Purchase only those pianos made of thoroughly seasoned wood, and of the best quality of materials generally, for such only are the cheapest pianos, no matter what their first cost may be.

Keep your piano as much from the influence of the hot air of your house furnace or stove as possible, for it injures the best made pianos, and almost renders those of inferior quality useless.

We frequently hear the remark that "our piano stands in tune for a year." Now the truth is, there is not one piano out of a thousand that, with any ordinary use, will stand bearably in use two months, and not one in five thousand that will remain perfectly in tune for three weeks. True pianos will stand sufficiently in tune, to suit an unskilled musical ear for half a year at times, but no cultivated

ear can tolerate the discord that ensues after a month or two of use.

Another important thing to be done to preserve a piano in order, is to keep out the moths. Cloth is used wherever there is liability to contact between any of the numerous portions of the instruments, in order to avoid the rattling and noise incident to such contact. Of course when this cloth is destroyed by the moths, the noises referred to ensue. Experience has shown that moths generate rapidly where dust is allowed to accumulate, and the best way to keep the pianos free from dust is to use a large feather brush at least once a week.

Tuning consists simply in tightening and relaxing the strings to the requisite degree, and does not include a general renovation and repair of the instrument, as many people imagine. New pianos require tuning once a month, and none should be allowed to go untuned over three months, for the longer an instrument remains untuned the lower its pitch of tone, and consequently the greater the strain upon the instrument to draw it up to "concert pitch," and when it is thus raised in tone double tuning is necessary, for the first drawing up causes the case to yield gradually and in a week or two the piano is out of tune.

The New York *Home Journal* has the following on this subject. The piano should be closed when not in use, in order to prevent the collection of pins, dust, &c., on the soundboard, and also to prevent the strings and "action" from the ill effects or sudden changes of temperature. Nothing injures a piano so much as extreme heat, whether arising from a bright fire in front of it, or what is worse, the hot air from furnaces in such general use; few pianos can resist the injurious action of the latter. Care should be taken to prevent moisture of any kind from getting between the keys, particularly when cleaning them, as it will cause them to stick. Moths are very destructive to pianos and should be kept out of them by placing a lump of camphor wrapped in paper to prevent evaporation, in the inside corners. Any hard substance placed on a piano will cause a jarring, and if the top part be unprotected by a cloth cover, that also will often rattle. Young pianists would injure the piano less if they would refrain from striking the keys with such force; a light touch, with a judicious use of the loud pedal, will yield a far better and equally as full a tone as if they exerted all the force at their command. Were this fact more attended to, fewer strings would be broken, one cause of the piano not remaining in tune would be removed, and less injury would result to the "action"

of the piano. These various annoyances are often attributed to inferior tuning, or defective make, when neither is the cause.

Few are aware of the benefit to be derived from having their pianos regularly tuned and kept in order; every new piano should be tuned at least once a month, and none should be allowed to remain untuned over three. When a piano is half a note below "concert pitch," and it is required to be brought up, it should be tuned twice, the second tuning about a month after the first, or it will not stand well in tune.

To Restore the Color of the Ivory to Piano Keys.—If they are yellow they may be rubbed carefully with very fine sand paper.

To Make an Æolian Harp.—Of very thin cedar, pine or other soft wood, make a box five or six inches deep, seven or eight inches wide, and of a length just equal to the width of the window in which it is to be placed. Across the top, near each end, glue a strip of wood half an inch high and a quarter of an inch thick, for bridges. Into the ends of the box insert wooden pins like those of a violin to wind the strings around, two pins in each end. Make a sound hole in the middle of the top, and string the box with small catgut, or blue first-fiddle strings. Fastening one end of each string to a metallic pin in one end of the box, and, carrying it over the bridges, wind it around the turning pin in the opposite end of the box. The ends of the box should be increased in thickness where the wooden pins enter by a piece of wood glued upon the inside. Tune the strings in unison and place the box in the window. It is better to have four strings as described, but a harp with a single string produces an exceedingly sweet melody of notes which vary with the force of the wind.

Another Way.—An Æolian Harp can be made by stretching a few threads of silk across a window, just beneath the upper sash, outside, in such manner that they will vibrate freely when acted upon by the atmosphere. There is no rule about the adjustment, and you must keep trying until you hit the happy mean.

HOW TO MAKE ALL KINDS OF INK.

Cheap Ink.—The editors of the *Country Gentleman* say: The best way to have good ink is to make it yourself, and save at least one thousand per cent, as ink is commonly sold at retail, between first cost and final price. But how shall we make it easily and cheaply? Thus:

Buy *extract of logwood*, which may be had for three cents an ounce, or cheaper by the quantity. Buy also, for three cents, an ounce of *bi-chromate of potash*. Do not make a mistake and get the simple chromate of potash. The former is orange red, the latter clear yellow. Now, take half an ounce of extract of logwood, and ten grains of bi-chromate of potash, and dissolve them in a quart of hot rain water. When cold, pour it into a glass bottle, and leave it uncovered for a week or two. Exposure to the air is indispensable. The ink is then made; and has cost five to ten minutes labor, and about three cents besides the bottle. This ink is at first an intense steel blue, but becomes quite black. The vessels must all be perfectly clean, or the ink will be dull or dirty color. If poured into an inkstand that has had other ink in, a little remaining will be sufficient to spoil the whole. This ink is excellent as well as cheap, but it often fails from impurity of materials, or using dirty water or dirty vessels, or pens used in other ink.

The same authority recommends also *eight* grains of bi-chromate of potash, instead of ten, to half an ounce pure extract of logwood. A correspondent adds that all ink made out of the extract of logwood is liable to become thick, and ought to be strained through a thick strainer, which there is no difficulty in doing. He says ten cents will buy the materials to make three quarts of this ink as good as that for which you would pay three dollars. And another says it will cost but five cents to make a quart as good as Arnold's. Another, growing poetical, says:—

This ink is cheap, and "black as night,"
It flows superbly while I write ;
Four cents a quart is the expense,
And by the gallon just nine pence.

The *Scientific American* says, logwood, bi-chromate of potash and a little gum arabic—one ounce bi-chromate of potash to three pounds extract of logwood—dissolved in hot water, will make three gallons of ink.

The Best Ink.—Dr. Ure says that he has tried a great many receipts for making ink, and he thinks the best is made of sulphate of iron, nutgalls and gum. The other things often added merely modify the shade and considerably diminish the cost to the manufacturer upon a large scale. Many of these inks contain little gallic acid or tannin, and are therefore of inferior quality. To make twelve gallons of ink, we may take twelve pounds of nutgalls, five pounds of green sulphate of iron, five pounds of gum senegal, and twelve gallons of water.

Ink made with nutgalls, logwood and the sulphate of iron, is the most permanent known to us for records that are intended to be kept many years.

Arnold's Ink.—This, it is said, is made by adding a small quantity of sulphate of indigo to common ink, made of sulphate of iron and nutgalls.

British Ink Powder.—Extract of logwood, some cam wood, a little picric acid and the bi-chromate of potash. We do not know the exact proportions.

Another Good Ink Powder.—Sulphate of copper, one ounce; gum arabic, two ounces; copperas, eight ounces; nutgalls in powder, thirty-two ounces; extract of logwood, thirty-two ounces. Or, Sulphate of iron, calcined, six ounces; powdered nutgalls, two ounces; powdered gum arabic, two drachms. A teaspoonful to a pint and a half of cold water.

Ink Plant.—Prof. Jameson, of the University of Quito, states that the expressed juice of the berries of the *coriaria thymifolia* is used by him in preference to the ordinary inks because it does not corrode the steel pen.

Another Very Cheap Ink.—Soft maple bark and willow bark, equal parts—a handful of each boiled in about four quarts of water, reduced to one quart. Take out the bark and add a lump of copperas about the size of a man's thumb to the first joint. If on writing with it, the ink appears very black, with a gloss on it, add a little water.

A Good Blue Ink.—Take three drachms of Chinese Blue (ferrocyanide of iron) and grind it up with one drachm of binoxalate of potash and seven ounces of water. Usually about one drachm of gum is added to these quantities.

Another Blue Ink.—Chinese blue, three ounces; oxalic acid (pure,) three-quarters of an ounce; gum arabic, powdered, one ounce; distilled water, six pints. Mix.

Another.—Two drachms oxalic acid, two drachms Prussian blue, to be mixed in half a pint of water, make a good blue ink, and is very simple.

Carmine Ink.—Carmine ink is made with carmine, a little gum arabic and aqua ammonia. If carmine ink is too thick, dilute with aqua ammonia, and it will then flow freely in writing.

Good Indellible Ink.—A good indellible ink for marking clothes is composed of nitrate of silver half an ounce, distilled water one ounce, and common carmine ink one ounce. If you desire to use thick ink for marking with a brush, add a little gum mucilage. The carmine

ink should contain a little aqua ammonia. This ink will not become black until it is exposed to sunlight. If it is not sufficiently black add some more nitrate of silver—it is the coloring agent. Keep the bottle covered from the light or the ink will be rendered worthless.

A Very Cheap Indellible Ink—said to be Superior.—Six cents worth of muriatic acid—one tablespoonful of soft water—one drop of vinegar.

Indellible Ink for Writing on Paper.—A communication has been made to the French Academy of Science, stating that Indian Ink, dissolved in water slightly acidulated with hydrochlorine or other acid, would prove to be indellible when used for writing on common paper.

Indian Ink.—Indian ink is a mixture of lamp-black and glue, with the addition of camphor and other substances in small quantities. It is said that the attempts to imitate it in this country and Europe have not been entirely successful.

Indestructible Ink.—A German scientific journal recommends twenty grains of sugar dissolved in thirty grains of water, to which is added a few drops of concentrated sulphuric acid. Upon heating this mixture the sugar becomes carbonized, and when applied to the paper, leaves a coating of carbon which cannot be washed off. This stain is rendered more permanent by the decomposing action of the acid itself upon the paper, and when thus made, it resists the action of chemical agents. The paper should after drying, be passed through a weak alkaline solution to remove excess of acid.

Sympathetic Ink—Invisible Writing.—Dissolve zaffre in nitro muriatic acid until the metallic part is extracted. Then dilute with common water and write. When dry expose to a moderate degree of heat, and what was invisible before will suddenly show itself in a fair writing, having a green tint. When the paper is cold the writing will disappear, and when again heated will become visible again. Valuable as is this, it is not generally known.

2. Take diluted muriate of copper and write with it on clean paper with a common pen. When dry no writing is visible, but when the paper is held to the fire the letters become perfectly distinct.

3. Writing with rice-water is rendered visible by the application of iodine.

4. It is said that the write their secret letters with sulphuric acid freely diluted with spring water, and that held before the fire, the letters turn black. A quill pen is used.

Gold and Silver Inks.—To prepare gold ink, take honey and gold leaf, equal parts; grind together upon a painter's porphyry slab with

a muller, until the gold is reduced to the finest possible state of division, and the mass becomes perfectly homogeneous, when it must be agitated with twenty or thirty times its weight of hot water, and then allowed to settle and the water poured off; this process must be repeated with fresh water two or three times, when the gold must be dried and then mixed up with a little weak gum water for use. The brilliancy of writing performed with this ink is considerable, and may be increased by burnishing. Gold ink may also be made by mixing precipitated gold powder with a little gum water. By dissolving in aquia regia and then adding ether, a solution is obtained which, when applied to polished iron, will coat it with a thin pellicle of gold.

Silver Ink is prepared in the same manner as the gold.

Marking Ink.—Thin black paint is the only indelible black marking fluid, known to us, for application on boxes with a brush. All the common inks wash out with rain. Nitrate of silver in solution is the common indelible ink sold for writing on linen.

Ink for Marking Tree Labels.—Take of verdigris and sal ammoniac each two drachms; lampblack one drachm; water four ounces. Mix well in a mortar, adding the water gradually. Keep in a glass vial securely stopped. Write with the ink in a quill pen, upon clean, bright zinc plates of any desired form. When dry, it may be exposed to the weather, or buried in the ground for years, without obliterating the writing. Shake the ink well before using.

To Detect Inks.—To distinguish writing made with nutgall ink from that of logwood ink, proceed thus: Immerse the written paper for some seconds in water acidulated with nitric acid (say six to eight drops of nitric acid to an ounce of water;) the logwood will assume a yellow-red color and afterwards disappear entirely, while the nutgall ink will remain unchanged.

To Obliterate Writing Ink.—Writing ink may be obliterated from ordinary paper by chlorinated carbonate of soda; by a solution of bromide; by a solution of chloride of bromide; by chloride of lime; by bromide of lime; by a solution of chlorine; by chromic acid; or by oxygenated water.

To Clarify Quills.—Plunge the quills in a kettle of boiling water, in which a small quantity of potash, alum, or common salt is dissolved. As soon as the quills are softened, take them out, and with the back of a knife scratch them. Repeat this operation until the quill becomes transparent, and all the fatty matter that coated is taken away. Then plunge them to soften them, and round them off between the thumb and finger, and immerse them in hot sand or warm ashes.

These take away the last remnant of grease, and make them hard and shining. A mixture of sand and clay is better than ashes. The mixture is heated on a sheet of iron or in an iron pot over the fire. The quills are pricked in the mixture, and left for about a quarter of an hour in the hot sand, then taken out and rubbed with a flannel, when they are fit to use for writing.

Another method is to submit them to the steam of boiling water for twenty-four hours. They are then taken out, the end is slightly opened and the marrow taken out, then rubbed with a flannel, and put to dry in a moderately warm place. The next day they become transparent like glass, and hard as bone without becoming brittle.

PAPER, PARCHMENT, TRACING, TRANSFERRING, &C.

How to Make Tracing Paper.—A very good substitute for tracing paper may be manufactured with ordinary paper by the help of a little benzole. A sheet of ordinary Bath post moistened with this oil, renders the material perfectly transparent; the tracing may then be effected, and within a short time the volatile fluid has evaporated and left the paper perfectly opaque and clear as before. The drawing sustains no detriment by the operation.

To Make Transparent Paper and Cloth.—Take a sheet of tissue paper, dip it into a solution of silicate of soda or potash, (soluble glass,) press it gently, and when dry it is complete. Another method is to dip the paper in a thin varnish of pure Canadian balsam, and allow it to dry thoroughly, when it is ready for use. This latter method also renders fine linen cloth transparent, and capable of being used for tracing drawings. Paper can also be rendered transparent by dipping it in limpid oil, then drying it in a warm situation, but it is not good for tracing paper when made in this manner.

A Good Paper for taking Impressions.—I have seen paper for transferring impressions of leaves, &c., made as follows: Take a sheet of thin letter or strong tissue paper, and give it a coat of boiled linseed oil; when dry apply dry colors (in powder) with a heavy camel's hair brush; enough will adhere to the surface to make a first rate impression.

A Good Transfer Paper may be made for copying monumental inscriptions and metallic patterns by rubbing a mixture of black lead and soap over the surface of common silver paper.

To Make Vellum Paper, or Artificial Parchment.—Draw a piece of common unsized paper through a mixture of two parts of concentrated sulphuric acid with one part of water, and then thoroughly wash it in water. If the acid either exceeds or falls below the above named strength, then the quality of the parchment is deteriorated. Paper thus prepared is so strong that a ring of it seven-eighths of an inch in width will sustain sixty-three to one hundred pounds. This paper from its strength and durability is suitable for legal deeds, policies of insurance, &c.; it will receive oil colors, and will answer perfectly for maps and engravings.

This process increases the strength of the paper, makes it translucent, and gives it the exact appearance of parchment, which it has in a great measure replaced, from its superior cheapness. According to Professor Calvert, of Manchester, England, the same process applied to cotton cloth very much increases its thickness and strength. The cotton thus prepared is technically known as "blanket."

Another Way.—Soak unsized common paper, such as is used for drawing on, in sulphuric acid diluted with half its volume of water, at 60°. Wash this well in cold water, then immerse in a weak solution of caustic ammonia, and again wash, when dry it is ready for use. It is indestructible by most acids and does not lose strength by wetting.

How to Make Paper Impervious to Water.—Take twenty-four ounces of alum and four ounces of white soap, and dissolve them in two pounds of water; into another vessel dissolve two ounces of gum arabic and six ounces of glue in the same quantity of water as the former, and add the two solutions together, which is now to be kept warm, and the paper intended to be made water-proof dipped into it, passed between the rollers, and dried; or without the use of rollers, the paper may be suspended until it is perfectly dripped and then dried. The alum, soap, glue and gum form a kind of artificial leather, which protects the surface of the paper from the action of water, and also renders it some what fire-proof. This is a preparation for water-proofing paper intended for packages exposed to the weather recommended by Professor Muschamp of Wurtemberg, Germany.

To Transfer Picture Prints.—Take any transparent varnish and put a thin coat of it on the box or article on which the transfer is to be made, allow it to become nearly but not quite dry, place the print upon it face downwards and make it adhere perfectly. When it becomes perfectly dry the paper may be rubbed off by moistening the finger, and the ink forming the print will be left behind adhering

firmly. Collodion, about the consistency of cream, if applied in the same manner, will answer the same purpose as varnish for transferring prints.

To Transfer Pencil Drawings to Metal or Stone.—M. Villani—Villanis remarks that if a sheet of paper on which a plan or any drawing or writing has been executed with pencil be moistened with acidulated water, and afterwards inked, the pencil marks alone will take the ink, and the whole drawing may then be transferred to metal or stone.

To Fix Pencil Drawings.—The plan generally pursued by artists is to dissolve a piece of gum the size of a pea in a tumbler of cold water, and with a camel's hair brush pass the solution lightly over the surface of the drawing. Leave it untouched until dry.

Another Way.—A teacupful of rice boiled in a pint and a quarter of cold water; this poured off and another pint and a quarter added; the moment it boils the liquor is to be poured into a jug and left to stand about ten minutes till the sediment sinks to the bottom. This clear liquid is to be kept for use and applied to pencil drawings warm. It may be poured into a tea tray, and the drawing laid upon its face on the liquid, and then pinned by a corner to dry.

To Preserve Pencil Drawings.—Pencil drawings are preserved by pouring skimmed milk over the surface. A yellow tone can be given to the paper by a decoction of coffee.

To take the Impression of Leaves of Plants on Paper.—Take a sheet of paper, and rub over it the thinnest possible film of oil; then hang it up in the air to partially dry the film. Next cover the paper with lampblack soot, or soot from a large tallow candle, by holding it extended over a smoky flame, and pressing it gently, but with care, into the flame, in order to cover the paper with smoke, but of course so as not to set it on fire. Having done this, put it into a damp place to take the curl out, and when cold and flat, lay on the smoky side the leaf intended to be impressed or printed; then press with a soft wad every part of it, so as to take up a portion of the black; this finished, place the leaf gently on a sheet of drawing paper, and put a piece of paper and a weight of books, or pressure, upon it. When the whole is removed there will appear a beautiful black impression, resembling a lithograph, of the leaf so treated, showing its true line, its veins and fibre, quite distinct and true to nature. Fleshy leaves of annuals and similar plants are better to copy than evergreens.

For a more simple method of taking impressions, which possesses the advantage that they may afterwards be colored by hand, instead

of lamp smoke and candle smoke, printer's ink may be used, as was done by Kniphoff in his celebrated botanical work, which extended to some dozen volumes folio, and was published more than a century ago, and was the first successful attempt at nature-printing on a large scale. Impressions taken in printer's ink, may be easily colored, and Kniphoff's work was published both plain and colored.

To Recover Writing on Paper or Parchment.—Morids' process for recovering writing on paper or parchment which has become nearly effaced, is as follows: The paper or parchment written on is first left for sometime in contact with distilled water. It is then placed for five seconds in a solution of oxalic acid (one of acid to one hundred of water;) next, after washing it, it is put in a vessel containing a solution of gallic acid (ten grains of acid to three hundred of distilled water;) and finally washed again and dried. The process should be carried forward with care and promptness, that any accidental discoloration of the paper may be prevented.

Copying Writing.—In the absence of copying book, press and ink, a little sugar may be added to common ink, and a copy of the writing easily taken off by laying a sheet of unsized paper damped with a sponge on the written paper, and passing over it a flat iron moderately heated. Persons accustomed to using a copy press, may in the absence of it obtain a fair copy by preparing the writing and book in the ordinary manner, then placing the copy book on a solid floor, press it by treading it with the feet, taking care to place a newspaper over and beneath the book to prevent its being soiled.

To Restore Faded Photographs.—The prints should be unmounted by soaking in water for a time, and then immersed in a saturated solution of bi-chloride of mercury, in which they may be left for two or three minutes, and afterwards thoroughly washed. The change takes place directly they are in the chloride solution.

To Prevent Photographs from Fading.—Photographs are more liable to fade or change when kept in a portfolio than when under glass and exposed to the action of light. A sulphurized proof, if kept in a perfectly dry place, remains for a very long time without exhibiting any signs of alteration, while in a damp place change is immediately evident.

PICTURE PAINTING AND TAKING PLASTER CASTS.

LESSONS FOR THE GRECIAN OIL PAINTING.

1. PROCURE a lithograph or engraving for your design to paint; then fasten the same by pasting or tacking it to a light wooden frame, so as to keep it straight while preparing and painting.

2. Then pour on the back of your picture a sufficient amount of the spirits of turpentine to saturate it well, spreading it gently at the same time with a flat varnish brush. This done continue to saturate it in the same manner, by using the Grecian varnish instead of turpentine as often as you see dry spots begin to appear on the surface of the picture, until it becomes clear, glossy, and transparent like glass. Receipt for making Grecian varnish: three ounces of balsam of fir, two ounces of alcohol, and one ounce of spirits of turpentine, mix well together.

3. This done leave it face down secure from dust, and in two or three days it will be dry enough to paint. After leaving it to dry you must watch it closely and if white spots begin to appear, repeat the process of saturating with the Grecian varnish.

4. When your picture is well dried, paint it on the back or wrong side, following the boundary line and covering the surface and form of every figure and portion of your design, as designated by your lithograph or engraving—using artists' colors and brushes. Colors must be used according to the nature of your design and scenery in the picture. Lay your colors on heavy, and mix Demar varnish with your colors before using them. No shading is required as that is all done by your design.

In painting the figure of a person, first paint the eyes and hair and let them dry; then the flesh color, which you make as follows: Mix Naples yellow, scarlet lake and silver white, so as to make it resemble the flesh color. Very little of Naples yellow and scarlet lake will do mixed with the silver white. Make the color of the lips and cheeks a little reder than the rest, by mixing a little more of scarlet lake with the flesh color; dabble the cheeks with your fingers, so as to blend them well. Back grounds and draperies are varied according to the taste of the artist. Colors generally used for back grounds are Vandyke brown, raw sienna and white, varied light or dark with more or less white mixed with it. Colors generally used for draperies are as follows: For buff, Naples yellow; for orange, chrome yellow and

very little scarlet lake mixed; for white, silver white; for blue, mix white and Persian blue; for green, chrome yellow and Persian blue (or emerald green); for purple, scarlet lake and Persian blue, mixed. Be careful to cover the whole surface of your picture with colors most suitable for your design, and, when finished, varnish on the right side or front of your picture with Grecian varnish.

6. *Explanations.*—You must saturate your picture but once with the spirits of turpentine; after which you must keep it well wet with the Grecian varnish, and be sure not to let it dry spotted, but clear; you must never commence painting on a picture until it is well dried (clear and transparent.)

Explanations on Lesson 5th.—In painting the eyes, first paint the white of the eye with silver white; then the pupil or sight; you paint for blue with white and little Persian blue, mixed; if you want hazel eyes mix yellow ochre and Vandyke brown and a little raw sienna.

LESSONS FOR THE CRYSTAL OR ORIENTAL PAINTING.

1. Procure a pattern for copy to paint from, such as flowers, wreaths of the same, vases of fruit, &c. Then, with wafers or other glutinous substances fasten the same to the glass so as to prevent the pattern from moving—the pattern of course being on the under side of the glass.

2. Then with a fine pencil, brush, or with a common writing pen, trace all the outlines of your picture or pattern, such as flowers, leaves, vines of the same, stems, ornaments, &c., as near as possible on the glass over your picture or pattern—the same as you would trace a pattern for embroidery, only you trace upon the glass instead of upon other paper—using asphaltum varnish and a very little lampblack mixed; adding a little turpentine if too thick.

3. This done, fill or paint all the background of your picture and spaces not occupied by flowers, leaves, stems, ornaments, &c., with the same material that you traced the lines with, when you want a black back ground; but if any other color, paint with oil colors, as follows:

4. For white ground, use silver white; for pink, mix scarlet lake and silver white; for blue, Prussian blue and silver white, mixed; for orange, mix chrome yellow and very little scarlet pink; for purple, use blue, white, and scarlet lake, mixed.

5. When your groundwork is well dried, then paint your flowers, leaves, stems and ornaments, &c., as near the natural color of the flowers as possible, using the following transparent colors: For red,

scarlet lake; for brown, burnt sienna; for green, yellow lake and blue mixed; for purple, scarlet lake and Persian blue, mixed; for yellow, yellow lake; for blue, Prussian blue; for white, silver white; for pink, scarlet lake and white mixed.

6. Lay your colors on very thin, and mix Demar varnish with them before using them. Shade with extra coats after the first is dry. With your pink and white you must mix a great quantity of Demar varnish, and lay them on thin as possible, as they are opaque colors. When all is well dried, cover the whole picture with tin or silver foil, which will give it a spangle and pearly appearance. The back board will hold the foil to its place, when the picture is framed.

LESSONS FOR THE ITALIAN LANDSCAPE PAINTING.

1. Procure your lithograph or engraving for your design to transfer on glass, and cut the margin off around your picture, this done, lay your picture in a pan of clean water till it sinks, after which remove it and lay it between dry papers so as to absorb the most of the water again, (old newspapers will answer for that purpose.)

2. This done, clean your glass and wipe it dry, then cover it with Demar varnish, spreading it at the same time evenly with a flat varnish brush all over, so that there is no spot left uncovered, this done, lay it away, so that the varnish can flow smoothly.

3. When your varnish is nearly dry (very little tacky) so that the varnish will not stick to your fingers when touched, but snap when your finger is removed, then lay your picture upon the table or any smooth surface, with the face or front side up and hold your varnished glass on it, with the varnished side down, in the position you want the picture on the glass. Lay the glass down carefully, pressing lightly, this will unite your varnished glass and the face of your picture.

4. This done, take a piece of dry paper and lay on the back of your picture where you see blisters or air bubbles upon the surface, and press them lightly with your fingers, from the center of the picture outwards; these must all be pressed out until there are no more to be seen between the surface of the picture and the glass, and you must always keep a dry paper between your fingers and the picture or you will roll up the paper and spoil the picture.

5. When the blisters are all removed, set the picture aside and let it remain until the varnish is dry and hard (which will require at least twelve hours;) then wet the paper with water and rub it with

your fingers until all the paper is removed, but a light film, the print will retain; then let it remain twenty minutes to dry; then varnish it again with Demar varnish and that will render it clear and transparent like glass.

6. When your picture is well dried paint it on the back or wrong side, following the boundary lines and covering the surface and form of every figure and portion of your design, as designated by your lithograph or engraving, using artists' colors and brushes. Colors must be used according to the nature of your design and scenery in the picture. Lay your colors on heavily; mix Demar varnish with them before using them. No shading is required, as that is done by your lithograph or engraving.

7. Explanations.—If you wish to paint the figure of a person or draperies, follow the direction given in the Grecian oil painting.

8. Landscapes.—To make trees: make the trunks and branches with Vandyke brown, raw sienna and silver white, mixed; for foilage, mix chrome yellow and Prussian blue, and vary with the browns; for rocks, mix Vandyke brown, white and raw sienna; for water, mix Prussian blue, white and a very small quantity of green; for distant hills, make it a little deeper blue; to make sky, mix Prussian blue and white, applied in the following manner: first paint the portion next to the tops of the hills, trees, &c., with entire white; then mix a very small quantity of Prussian blue, as you go upwards on the picture. If you want a warm appearance on the horizon, mix a small quantity of scarlet lake, so as to give it a red tinge.

LESSONS FOR THE CELESTIAL PAINTING.

You proceed the same as in the first five lessons in Italian Painting, and in the sixth to the exception of one line, which says lay your colors on heavily, and in this lay them on light.

In painting the figure of a person in a picture, first paint the hair and eyes and let them dry; then the flesh color, which you make as follows: mix Naples yellow, scarlet lake and silver white together, so as to make it resemble the natural flesh in color—this you can judge of by comparison. You make the lips and cheeks a little redder than the rest by mixing a little more scarlet lake with the flesh color; dabble the cheeks with your fingers so as to blend them well. Backgrounds and draperies varied according to the taste of artist, using the same colors as in the Grecian oil painting. Lay your colors on thin, all except the back grounds and flesh colors, those you lay on heavily, and be sure to mix Demar varnish with them before using.

so as to make them dry, and also to make them clear. When your picture is all painted, backgrounds, draperies, &c., &c., let it remain three or four days before framing, to dry. And when it is dry, cover the transparent portions of your picture with tin foil, the same as you do the crystal painting. Lay the foil between the glass and back board, so that your transparent colors will look brilliant.

Explanations.—The following colors are all that are necessary to use in the four different sorts of painting, as given in these lessons:—Naples yellow, chrome yellow, yellow ochre, emerald green, scarlet lake, Prussian blue, burnt sienna, raw sienna, Vandyke brown, ivory black, silver white.

List of Materials Used.—One palette board and knife, one flat varnish brush, three sizes of artists' brushes, sufficient amount of Demar varnish, and also green varnish and turpentine, for saturating in Grecian painting, and for washing brushes in.

Brushes are worth from 5 to 10 cents each; colors from 10 to 12 cents each except the lakes, which are worth 20 to 25 cents each.

Be careful not to mix too much paint at once, for if you do, it will dry and be good for nothing.

N. B. Backgrounds can be painted after the other is done, by mixing all the different sorts together that are left.

TAKING PLASTER CASTS.

To make a cast from a mold so as to have the interior hollow, we will first give an illustration. Take a quantity of melted tallow, and pour it into a glass bottle, cork up the bottle and roll it around so that the tallow shall flow over every part of the surface. It will soon get cool and adhere to the inner surface of the bottle, and the shell of tallow will be only so thick as the quantity of the material will make it. If more tallow were poured in, and the process of rolling it about were resumed, it would increase the thickness of the shell to any required extent. Suppose a mold made for casting a human head, of course it would be made in parts and joined. That mold could be waxed or greased so that the plaster cast would not adhere to it firmly. The parts would be put together and tied so that they should not become displaced, and the plaster would be stirred up about as thick as batter for buckwheat cakes. Of course it is calcined plaster, which will harden pretty quickly after being wet up with cold water. This batter or thin plaster is poured into the mold, and the mold turned around and around, so that the liquid plaster will flow over every part of the inner surface of the mold. The operator con-

tinues to roll the mold till the plaster ceases to flow. If one batch or quantity thus poured in should not be sufficient to make a cast so thick as is requisite, let another quantity be stirred in like manner and poured in, and the mold rolled as before. This will make a second thickness, and even a third or fourth thickness can be added. Then lay the mold aside for twenty minutes or half an hour, for the plaster to become set, when the strings may be taken off and the parts of the mold gently loosened and carefully removed from the cast, when it will stand out in all its whiteness and glory, and be an exact counterpart of the interior surface of the mold, and will be hollow. If it has been skillfully manipulated, every part of the cast will be almost exactly alike in thickness. If too little plaster is used, so that the cast is very thin, a longer time would be required for the plaster to harden, so as not to break in taking the mold off.

It is more trouble to make the mold than it is to make the cast from the mold. To give the method of this we will begin in simple form. If the cast of an egg should be required, take a small dish, or say a clam shell, and fill it with wetted plaster. Take the egg and oil it, and imbed it just half its bigness in the plaster, and let the plaster harden and the egg lie in the plaster. It is presumed that the surface of the plaster around the egg will form a straight, clean edge. If it should not, it should be carefully smoothed with a knife. This, by a skillful hand, can be done while the plaster is moist or quite soft. When hardened, take the point of a knife and bore some little flaring holes in the plaster around the egg as it lies embedded in the plaster. These holes may be a quarter of an inch deep, in the form of an inverted pyramid. Then take oil in a brush and oil the edge of this first half of the mold, especially these little holes; and oil the top part of the egg. Then mix up more plaster, and with a spoon pour it on the top of the egg, and let it flow down on to the edge of the first half of the mold in which the egg is still imbedded; and when the egg is completely covered, and of sufficient thickness for the mold, let it get hard, and then take the top part of the mold off, and remove the egg from the under half. Then whittle a place at one end to pour the plaster in; half the hole being in each half of the mold. The mold will be held in place by little pins or teeth that have been formed on the last half and fit into the small pyramidal holes previously bored. Then, the mold being oiled nicely and put together, and fastened by a string, the plaster may be poured in, and the mold filled up solid. Precisely one-half the egg having been imbedded in each half of the mold, it will easily come off the cast and reveal the form of

the original pattern. A slight seam will be seen on the cast, which, with a knife can be carefully removed, and you have the cast of the egg.

If a human hand were to be cast, it might be imbedded just half way and care taken that the plaster all around rises just to the middle line of the fingers, so that it would draw from the mold without pressure, then pour plaster on the upper half in the same manner as upon the upper half of the egg. And when the mold is taken from the hand and put together, the cast of the hand can be made just like the cast of the egg.

We advise raw hands not to work at taking casts of the head till they have tried eggs and hands and other objects, such as irregular formed potatoes, pears, etc. And there must be as many pieces to the mold as may be required to take the mold off from a solid casting without breaking the mould or the casting.

In taking the cast of a face, the subject is usually laid on his back, quills are put in the nose to maintain breathing, and something is laid around the head back as far as the ears, and a front-piece made that can be taken off and the edges whittled smooth, the pin holes or dowel places made, put back on the face with the edge oiled, and the back-head taken in like manner. But the hair must be filled with soap or paste, and laid in solid masses, so as not to stick to the mold or become imbedded in it, otherwise there will be a double grief—one for the artist and the other for the luckless subject. When the mold is ready, a cast is taken, generally solid, and the mold broken off in small pieces—the cast finished smoothly, and a new mold made in small parts, so that it can be taken off, and when this is dried and oiled, nice casts of the face and head are made.

THE WEATHER AND ITS SIGNS.

THERE is no subject of more importance, and yet there is none with which men of science, and others, are so superficially acquainted, as that indicated in the above caption.

The heat of summer and the cold of winter, the rain and the snows, the thunder and the lightening, the hurricane and the gentle breeze, how many mingled associations of pleasure and grief are connected with these. Our enjoyments, yea, our very existence, it may be said, are dependent on those operations of nature which we call *the weather*.

HOW TO FORETELL WEATHER.

The reason seamen, Indians, and backwoodsmen can predict the state of the weather for a short time so accurately is, because they have long been accustomed to the observation of all Nature's signs. Many of these weather signs have become known to others than the classes above named. For example: the darker the color of the sky, when viewed perpendicularly upward, the more it indicates dry weather; and the paler it is, the more it indicates wet weather. Paleness and dulness of the sun and moon indicate wet weather; and when they are of a bright and clear color, dry weather is indicated. When the horns of the moon are sharp, or when the margin of the moon is well defined, it indicates dry weather; but when the contrary is the fact, wet weather is indicated. Since these signs have become known, philosophers have had no trouble in explaining them. It is very simple. The more moisture or aqueous vapor there is in the atmosphere, the paler and duller the sky, sun and moon appear, and the dryer the atmosphere, the brighter and clearer they all look. So, when the moon is surrounded by an iris, or "ring," it indicates rain, because the iris is produced by the moon's light being reflected by aqueous vapor contained in the atmosphere. Again—supposing no moon visible, if the stars look larger and somewhat paler, less vivid, and at the same time less numerous than usual, it indicates an unusual amount of moisture in the atmosphere, and accordingly foretells rain. On the contrary, when the stars look 'smaller, more twinkling, and at the same time more numerous than usual, it indicates that there is a less amount of aqueous vapor in the atmosphere, and accordingly foretells dry weather. It is very interesting to observe and study these weather signs, and a mastery of them is a useful accomplishment. Any one who has eyes can pursue the investigation, and it will not interfere with any other pursuit.

Whether clear or cloudy, a rosy sky at sunset presages fine weather; a red sky in the morning, bad weather, or much wind (perhaps rain); a grey sky in the morning, fine weather; a high dawn, wind; a low dawn, fair weather. Soft looking or delicate clouds foretell fine weather, with moderate or light breezes; hard-edge, oily-looking clouds, wind. A dark, gloomy blue sky is windy; but a light, bright blue sky indicates fine weather. Generally, the softer clouds look, the less wind (but, perhaps, more rain,) may be expected; and the harder, more greasy, rolled, tufted, or ragged, the stronger the coming wind will prove. Also, a bright yellow sky at sunset presages wind;

a pale, yellow, wet; and thus, by the prevalence of red, yellow, or grey tints, the coming weather may be foretold very nearly, indeed, if aided by instruments, almost exactly. Small inky looking clouds foretell rain; light scud clouds driving across heavy masses show wind and rain; but if alone may indicate wind only. High upper clouds crossing the sun, moon, or stars, in a direction different from that of the lower clouds, or the wind when felt below, foretell a change of the wind. When sea-birds fly out early, and far to seaward, moderate wind and fair weather may be expected; when they hang about the land, or over it sometimes flying inland, expect a strong wind with stormy weather. There are other signs of a coming change in the weather known less generally than may be desirable, and, therefore, worth notice; such as when birds of long flight, rooks, swallows, or others, hang about home, or fly up and down or low—rain or wind may be expected. Also when animals seek sheltered places, instead of spreading over their usual range; when pigs carry straws to their sty; when smoke from chimneys does not ascend readily, (or straight upwards during calms,) an unfavorable change is probable. Dew is an indication of fine weather; so is fog. Neither of these two formations occur under an overcast sky, or when there is much wind. One sees fog occasionally rolled away, as it were, by wind, but seldom or never formed while it is blowing.

The following pleasant lines, attributed in an old book to Dr. Jenner, contain nearly all the observed signs of rain. It is supposed to have been written as an excuse to a friend for deferring an invitation to a country excursion. Many of these signs may be thought very childish, and perhaps be ascribed to superstition; but they are really based upon well-known laws, and can all be scientifically explained by a reference to them:

The hollow winds begin to blow,
 The clouds look black, the glass is low,
 The soot falls down, the spaniels sleep,
 And spiders from their cobwebs creep.
 Last night the sun went pale to bed,
 The moon in halos hid her head,
 The boding shepherd heaves a sigh,
 For see! a rainbow spans the sky.
 The walls are damp, the ditches smell,
 Closed is the pink-eyed pimpernel.
 Hark! how the chairs and tables crack;
 Old Betty's joints are on the rack.
 Her corns with shooting pains torment her,
 And to her bed untimely sent her.
 The smoke from chimneys right ascends,

Then speeding back to earth it bends.
 The wind unsteady veers around,
 Or setting in the south is found.
 The tender colts on back do lie,
 Nor heed the traveler passing by.
 In fiery red the sun doth rise,
 Then wades through clouds to mount the skies.
 Loud quack the ducks, the peacocks cry,
 The distant hills are looking nigh.
 How restless are the snoring swine!
 The busy flies disturb the kine.
 Low o'er the grass the swallow wings ;
 The cricket, too, how loud it sings!
 Puss, on the hearth, with velvet paws,
 Sits smoothing o'er her whiskered jaws.
 Through the clear stream the fishes rise,
 And nimbly catch the incautious flies.
 The sheep were seen at early light,
 Cropping the meads with eager bite.
 The sky is green, the air is still,
 The mellow blackbird's voice is shrill.
 The glow-worms, numerous and bright,
 Illumed the dewey dell last night.
 At dusk the squalid toad was seen,
 Hopping, crawling o'er the green.
 The frog has lost his yellow vest,
 And in a dingy suit is dressed.
 The leech, disturbed, is newly risen,
 Quite to the summit of his prison.
 The whirling wind the dust obeys,
 And in the rapid eddy plays.
 My dog, so altered in his taste,
 Quits mutton bones, on grass to feast.
 And see yon rooks how odd their flight?
 They imitate the gliding kite;
 Or seem precipitate to fall,
 As if they felt the piercing ball.
 'Twill surely rain. I see, with sorrow,
 Our journey must be put off to-morrow.

Some of these observations are expressed in the following proverbs :
 A rainbow in the morning, Gives the shepherd warning. A rainbow
 at night, Is the shepherd's delight. Evening red, and next morning
 gray, Are certain signs of a beautiful day. When the glow-worm
 lights her lamp, The air is always damp. If the cock goes crowing to
 bed, He'll certainly rise with a watery head. When you see gossa-
 mer flying, Be ye sure the air is drying. When black snails cross
 your path, Black clouds much moisture hath. When the peacock
 loudly bawls, Soon we'll have both rain and squalls. When ducks

are driving through the burn, That night the weather takes a turn.
 If the moon shows like a silver shield, Be not afraid to reap your field.
 But if she rises haloed round, Soon we'll tread on deluged ground.
 When rooks fly sporting high in air, It shows that windy storms are near.
 Crows on the fence, The storm is going hence; Crow on the ground,
 the storm is coming down.

The Direction of Wind Indicating the Weather.—The editors of the *Scientific American*, say: In this region [New York] a south-east wind is almost certain to bring a rain within twelve hours, while a north-west wind always brings fair weather in the course of two or three hours. A north-east wind is generally accompanied by rain or snow, but not always; we have known the wind to blow from the east for several days in succession, and the sky to continue perfectly clear all the time. With a south-west wind the weather is wholly uncertain, though more likely to be clear than rainy. For the coming of a north-east storm the telegraph is the most trustworthy of all indications.

A North-east Storm Moves Against the Wind.—Dr. Franklin observed that the north-east storms on the east side of the North American Continent usually commence at the south-west and travel against the wind; and the fact of this apparently impossible operation has been confirmed by all subsequent observation. So well established is the law, that since the construction of telegraphs, it has been customary in Washington to arrange out-door operations on the telegraphic reports of the weather at the south-west. A north-east storm commencing in South Carolina, usually reaches New York in from eighteen to thirty-six hours, and continues at the same rate to Boston, Portland and Halifax.

THE BAROMETER.

Prof. Marcot, of Geneva, states that of 2.630 changes of weather, the barometer prophesied 1.960 times correctly. This approaches nearly to the proportion of three times out of four.

To Make a Cheap Barometer.—Take a clean glass bottle and put in a small quantity of finely pulverized alum. Then fill the bottle with spirits of wine. The alum will be perfectly dissolved by the alcohol, and in clear weather the liquid will be as transparent as the purest water. On the approach of rainy or cloudy weather, the alum will be visible in a flaky spiral cloud in the center of the fluid, reaching from the bottom to the surface. This is a cheap, simple and beautiful

barometer, and is placed within the reach of all who wish to possess one.

The Camphor Storm Glass.—It consists of a glass tube ten inches in length and three-fourths of an inch in diameter, filled with a liquid containing camphor, and having its mouth covered with a piece of bladder perforated with a needle. A tall phial will answer the purpose nearly as well as the ten-inch tube. The composition placed within the tube consists of two drachms of camphor, half a drachm of pure saltpetre, and half a drachm of the muriate of ammonia, pulverized and mixed with about two ounces of proof spirits. The tube is usually suspended by a thread near a window, and the functions of its contents are as follows:—If the atmosphere is dry and the weather promises to be settled, the solid part of the camphor in the liquid contained in the tube will remain at the bottom, and the liquid above will be quite clear; but on the approach of a change to rain, the solid matter will gradually rise, and small chrystalline stars will float about in the liquid. On the approach of high winds, the solid parts of the camphor will rise in the form of leaves and appear near the surface in a state resembling fermentation. These indications are sometimes manifested *twenty-four* hours before a storm breaks out. After some experience in observing the motions of the camphor matter in the tube, the magnitude of a coming storm may be estimated; also its direction, inasmuch as the particles lie closer together on that side of the tube that is *opposite* to that from which the coming storm will approach.

Another Rain Glass.—Fill a common pickle bottle with water to within two or three inches of the top; plunge the neck of an empty oil flask (first cleaning it with soda and warm water,) into the pickle bottle. Before rain the water will rise in the inverted flask—sometimes two or three inches in three or four hours. It may stand in or out of doors, in sun or shade, and the water seldom needs changing.

Another Cheap Barometer.—The following method is said to make a reliable barometer:—Take two sheets of pasteboard of any convenient size, say three feet long by two feet wide. Bring the ends together, and glue and paste them tight, each sheet by itself; and they will look like two pieces of paper stove-pipe. Cut thin, round boards exactly to fit in the ends of these paper cylinders. Carefully glue or nail them tight. Now you have two air-tight paper drums with wooden heads. Take a pole of any length you desire—three feet or twelve feet—let one drum be fastened to each end of the pole. Now balance this pole with the drums on each end, on nice pivots, in the middle.

Then bore a gimlet through the end of one drum, and you have a good farmer's barometer. One drum is air-tight, so there will be more or less air in one drum than there is in the other, according as the surrounding air is dense or rarified. Consequently in dense or heavy air, the tight drum rises, while the one with a pin hole in it goes down. Crosswise through the middle of the bar, or pole, should run a stick as large as one's finger, a foot long, with wire gudgeons on which the instrument should vibrate or teeter. Let the ends of the pole be slightly lower than the middle that the whole do not make a somerset; smear all with glue or oil, so that no air enter except in the puncture mentioned. Have something you can slide through the bar to keep it nearly level. Mark if you please figures along the pole to show how far you have moved the balancing poise, though for this there is but little need.

A Very Simple Weather Indicator.—Dr. Hall says: Allow the sugar to dissolve in your coffee or tea without stirring; if froth remains in the center, durable fine weather is indicated; but rainy if it settles.

A Very Novel Barometer.—The *Warren (O.) Chronicle* says: A gentleman in this place has at his residence a natural barometer, which consists of a live frog, that lives in a glass jar, which is kept half full of water. A small three round ladder is placed upright in the jar, and in dry or fair weather his frogship perches quietly on the ladder, but when the atmosphere indicates a storm he drops to the bottom of the jar and acts as though he felt uncomfortable. Inasmuch as he has a dainty palate and will only eat flies, spiders, bugs and other live insects, and as that species of game is scarce at this season, the amphibious gentleman is enjoying a protracted fast.

Leech Barometer.—Put a healthy leech into a clear glass bottle full of water, and renew the latter every second day. If the day is to be wet, it will creep up to the top of the water and remain there till the weather is settled; if the weather is to be fine, the leech lies motionless at the bottom of the glass and coiled together in a spiral form; if we are to have wind, it will move through the water swiftly, and seldom rests quiet till it begins to blow hard; if a heavy storm of thunder and rain is to succeed, it will lodge for some days before almost continually out of the water and discover great uneasiness in violent throes and convulsive-like motions; in frost as in clear summer-like weather it lies constantly at the bottom; and in snow as in rainy weather, it goes to the very mouth of the phial. The top should be covered over with a piece of muslin.

Nature's Barometer.—The scarlet pimperdel (*Anagallis arvensis*), shepherd's barometer, or poor man's weather glass, is the best floral barometer; because not only does the flower never open on a rainy day, but long before the shower is coming it is conscious of its approach and shuts up its petals. This peculiarity was noticed by Derham in his "Physico Theology;" by Lord Bacon, who calls it vinco-pipe, and by Leyden. The chickweed flower is one of the best, and is one of the commonest indicators of the changes of weather. It has been recommended that the traveler by the roadside should wrap his cloak around him if the flower is not quite closed; for rain, if not come, is not far off. But if the chickweed flower be fully expanded, he may walk gaily on with a pretty good assurance that for hours at least he may be safe from rain.

THE TOILET—COSMETICS, ETC.

Cosmetics.—When we consider the anatomical structure of the skin, and how easily it absorbs substances applied to it, it is evident how careful we should be not to use any deleterious materials for the face and hands, and that we should know accurately the nature and composition of all substances used.

The intimate connection between the functions of the skin and those of the stomach were not so well understood formerly as they are in the present day; and hence many practices were resorted to in the use of cosmetics that are now known to be very improper. Nevertheless, all cosmetics are not to be condemned equally; some are, perhaps, harmless, and others are occasionally useful. We shall illustrate this by a few general remarks. Of paints for the face, which are occasionally employed, some, as we shall show, are highly dangerous; and those which are not so have an injurious effect, if used constantly, in stopping up or clogging the pores of the skin. Those cosmetics which owe their efficacy to vinegar and alum, or any other acids and astringents, are often for a time efficacious, giving a firmness and lustre to the skin; but this effect is merely temporary, for they in time alter its texture, dry it, and produce premature wrinkles; they are, therefore, better avoided. Mucilaginous cosmetics, such as barley-water, oatmeal, &c, have not this inconvenience; they render the skin more supple, softer, and more polished. Pastes and ointments sometimes produce good effects in certain states of the skin. They are generally laid on the face and hands, and remain on all night, contributing to restore the suppleness and elasticity of the skin; but the fatty

substances that form their basis ought to be well purified. Some consider the wax that sometimes enters into the composition as too drying and irritating, and recommend fresh cream as better. As a general rule, it is prudent to avoid the use of all cosmetics the composition of which is a secret or unknown, which will, of course, exclude all those which are advertised with high-sounding names. Some of those produce astonishing effects at first, but ultimately ruin the skin, destroying its natural functions, and, consequently, seriously injuring health.

All medical men teach that the best way of improving the skin is to improve the health generally by temperate living and moderate exercise, and this will be evident by considering its structure. It is well known that the skin consists of the *outer* or *scarf skin* called by anatomists the *cuticle* or *epidermis*, and the *inner* or *true skin*, named *dermis*. The *first* is a very thin membrane, transparent, and without blood vessels; it has no nerves, consequently no sensation, and may be pared or cut with a knife without any pain; it is that which rises in blisters. The *true skin* beneath is much thicker, and is entirely filled with nerves, and the extremities of an infinity of minute blood vessels, by which the blood which comes from the heart to the skin returns back again, the turn in the circulation being at the surface. That these nerves and vessels are excessively numerous is shown by the prick of a needle in any part giving pain, and by the blood which issues from some very minute vessel having been pierced. The change in a large portion of the circulation taking place, as we have stated, in the skin, it is obvious that whatever impedes in any degree the healthy action of these organs must affect the whole system, so far as the circulation is concerned; and it is to preserve its most important functions that the use of the bath, friction, and similar processes are resorted to. These minute blood-vessels approach very near to the surface of the skin, and the cutis being transparent, they give the flesh color, which is more ruddy in some places than in others, as upon the cheeks, from their greater size or number in that part; and the want of healthy action in these vessels is indicated by the paleness of the complexion. In the skin there are, likewise, innumerable minute pores, by which the insensible perspiration exudes.

Under the title of cosmetics may be comprehended all substances or preparations for the purpose of preserving or restoring beauty. Their purpose is to change the appearance of the skin, the hair and the teeth. Perfumery, too, enters into the category. A countless number of preparations are used, yet they are mostly various mix-

tures of a comparatively small number of substances. The preparation of cosmetics was at one time a secret art of high repute, and some kinds were sold for almost fabulous prices.

Pearl White is a preparation of bismuth, which is sold under that name, but which is extremely injurious to the skin. It is also liable to turn black if exposed to the fumes of sulphur, or the sulphurated hydrogen of certain mineral waters. So is pearl powder. On this subject an anecdote is told. A lady thus painted was sitting in a lecture room, where water impregnated with sulphurated hydrogen was handed round for the examination of its odor. On smelling the liquid, the lady became *black in the face*. Every person was, of course, alarmed at the change, till the lecturer explained the cause of the accident. The lady received no serious injury, but had a salutary lesson.

Pearl Powder, according to the common acceptance of the term, consists of equal parts of oxide of bismuth and oxide of zinc, with sixteen parts of French chalk. *French Blanc* is levigated talc passed through a silk sieve. This when well prepared is probably the best face powder made, inasmuch as it does not discolor from cutaneous exhalation or an impure atmosphere.

Calcined talc is also extensively used under various names, and is unobjectionable; but it is less unctious to the feel, and more likely to be seen than genuine French blanc.

Rouges are usually made by mixing coloring matter with either of the above named powders. The finest kinds are made by mixing carmine with French blanc, in different proportions, say one part of carmine to from eight to twenty parts of blanc, in order to produce different shades of color for different complexions. *Rouges* are sold in form of powder, cake, and paste or pomade. Common *pink saucers* are made by washing safflower (*carthamus tinctorius*) in water until the coloring matter is removed, and dissolving out the carthamin, or coloring principle, by a weak solution of carbonate of soda. The coloring is then precipitated into the saucers by the addition of sulphuric acid to the solution. They are applied to the cheeks with a piece of wool. *Spanish Wool* and *Cripon rouge* are made by the same process. Preparations containing lead are very dangerous. It has been clearly proven by some of the most scientific men in France that the health and lives of many distinguished artists and women of fashion have been sacrificed by the use of poisonous cosmetics.

Milks and emulsions are nearly allied to paints. *Pomades* frequently contain acetate and carbonate of lead, corrosive sublimate

and cinnabar; in which case they possess injurious qualities. Says the prophet Jeremiah: "Though thou rentest thy face with painting, in vain shalt thou make thyself fair." Although cosmetics may for a time soften the skin, give gloss to the hair, and tint to the cheek and the lip, the time is but hastened when the lily and the rose give place to a leaden hue, and the lips of carmine to a livid blue.

Cosmetic Soaps.—Those small cakes of perfumed soap used for the toilet can easily be manufactured by dissolving common bar soap of any kind, and adding perfumed ingredients and coloring matter—if the latter are desired. The bar soap is cut up into thin slices, placed with a small quantity of water in a pan over a fire, and is stirred until it is reduced into a paste. The perfumes are then added, well stirred, and the soap run off into a flat frame or dish, and set in a cool place. In the course of three days it is fit to cut into cakes and stamped with any ornamental figure or name. In establishments for conducting the manufacture of these soaps, the heating is performed in a steam bath, and machinery and apparatus are employed for conducting the business with facility and economy.

Almond Soap.—This is perfumed with two pounds of the otto of almonds added to one hundred and twenty-eight pounds of dissolved bar soap. The heat should be as low as possible.

Camphor Soap.—This is made by adding one and a quarter pounds of the otto of rosemary and the same amount of otto of camphor to twenty-eight pounds of dissolved bar soap.

Brown Windsor Soap.—This soap has a distinguished reputation, and sells at a high price. It is made by adding half a pound each of otto of carraway, cloves, thyme, cassia and lavender, to one hundred and sixty-eight pounds dissolved bar soap. Its brown color is produced by roasted sugar—caramel.

Perfumed Soaps of endless variety can be produced, according to the perfume employed to give them their peculiar odor. Some of the fragrance, however, is always lost by adding the volatile perfumes warm; therefore another method to produce scented soaps is to add the odoriferous ingredients cold. This is done by shaving bar soap in very thin slices, pounding them in a mortar with a very small quantity of cold soft water, adding the perfumes, and triturating well with the pestal. When well triturated, the soap is taken out and pressed into any desired form of cakes in moulds, and then set to dry in a cool place.

A very fine fancy soap is made by adding to six pounds of soap shavings, eight ounces of oil of citron, half an ounce of verbena, four

ounces of the oil of bergamot, and two ounces of the oil of lemons. This is an expensive but excellent toilet soap.

Transparent soap is made by dissolving pure tallow or oil soap in alcohol, then allowing it to dry in a warm situation. The soap is added to the alcohol in fine shavings, and after being dissolved it is formed into cakes or balls, as may be desired. Any kind of perfume may also be added to transparent soaps in the alcohol.

In the choice of cosmetics, of whichever class, those known to be inert should always be preferred to those of doubtful properties, however agreeable to the senses. And it should constantly be borne in mind, that whatever is a foe to health is an enemy to beauty.

To Make Rose Water.—Otto of roses, twelve drops; white sugar, half an ounce; magnesia, two drachms; pure soft water, one quart; alcohol, two ounces. Rub the otto of roses with the sugar and magnesia, and gradually add the water and alcohol, previously mixed, and filter the whole through paper.

Lavender Water.—One pint of rectified spirit, half an ounce of oil of lavender, four ounces rose water. Mix and filter through filtering paper.

The common mode of preparing lavender water is to put three drachms of the essential oil of lavender, and a drachm of the essence of ambergris, into one pint of spirits of wine.

A Perfume Resembling Violets.—Drop twelve drops of genuine oil of rhodium on a lump of sugar, grind this well in a glass mortar, and mix it thoroughly with three pounds of orris powder.

How to Make Cologne Water.—The following preparation of Cologne water will be found a very cheap substitute for the cologne water of the shops for which three or four hundred per cent. is asked more than the cost of this:

To one quart of alcohol add sixty drops of lavender, sixty drops of bergamot, sixty drops of essence of lemon, and sixty drops of orange water. To one gallon of alcohol, put two hundred and forty drops of each of the perfumes.

Either of the following recipes will make a good Cologne water:—

1. Essential oil of bergamot, of lemon, of neroli, of orange peel and rosemary, each twelve drops; cardamon seed, one drachm; rectified spirits, one pint. It improves by age.

2. Essence of bergamot, forty drops; essence of lemon, forty-five drops; oil of rosemary, six; oil of orange, twenty-two; oil of neroli, twelve drops; highly rectified spirits, six ounces.

Another.—Take of lemon, bergamot and rosemary, each two drachms,

lavender, one drachm, cinnamon and cloves, of each eight drops, alcohol, a pint and a half.

An Excellent Cologne.—Rectified spirits of wine four pints; oil of bergamot one ounce, oil of lemon one-half ounce, oil of rosemary one-half drachm, oil of neroli three-fourths of a drachm, oil of English lavender one drachm, oil of orange one drachm; mix well and then filter. If these proportions are too large use smaller ones.

Toilet Vinegars—Vinaigre Rosat.—Take dry rose leaves, red, one-half pound; good vinegar, eight quarts. Macerate two weeks, and filter.

Vinaigre Framboise.—Take crushed fresh raspberries, six pounds; good vinegar one quart. Macerate one week, strain, and after a few days filter.

The best vinegar should be used for these articles; that which is called white wine vinegar made by acidification or oxidation of alcohol is the best.

Sachet Powders.—1. Orris root, four ounces; calamus, two ounces; yellow sanders, four drachms; cloves, two drachms; benzoin, four drachms; dry bergamot, one ounce. Reduce to fine powder, and mix thoroughly.

2. Dried rose leaves, eight ounces; cloves, four drachms; nutmegs, four drachms.

CARE OF THE FACE AND HANDS.

Milk of Almonds for Bathing the Face.—Bruise some sweet almonds in a mortar, and add water by slow degrees in the proportion of a pint to twenty or thirty almonds; put to this a piece of sugar, to prevent the separation of the oil from the water rubbing assiduously. Pass the whole through a flannel, and perfume it with orange-flower water.

Saponaceous Cream of Almonds.—The preparation sold under this title is potash, soft soap and lard. It has a beautiful pearly appearance, and has met with extensive demand as a shaving soap. It is made thus: Clarified lard, seven pounds; potash of lye (containing twenty-six per cent. of caustic potash) three and three-quarter pounds; rectified spirits, three ounces; otto of almonds, two drachms. Manipulation: Melt the lard in a porcelain vessel by a salt water bath; then run in the lye, very slowly, agitating the whole time; when

about half the lye is in, the mixture begins to curdle; it will, however, become so firm that it cannot be stirred. The cream is then finished, but is not pearly; it will, however, assume that appearance by long trituration in a mortar, gradually adding the alcohol in which has been dissolved the perfume.

To Prevent the Face from Chapping after Shaving.—Immediately afterwards apply a little diluted vinegar or other acid, or Cologne water.

For Rough, Pimply, or Chapped Face wash in a weak solution of chlorate of potash. It may be had for a trifle at any druggists. Another remedy for pimples on the face has been sent us, for the efficacy of which we cannot vouch, though, it is highly commended. It is as follows: Wash the face, just before going to bed, with sour milk or buttermilk, and when dry rub thoroughly with dry wheat flour. In the morning wash with soft cold water and rub vigorously with a coarse towel. In ten days, it is said, all signs of pimplification will disappear, and your mirror will reflect back a state of things of which you may be justly proud.

Another remedy which has been sold at a high price and pronounced effectual but which is a very dangerous poison and should never be used, is made simply of one part corrosive sublimate to thirty parts of clear soft water, to which is added a little essence of rose or almonds, or otherwise scented. The directions are to apply it to the face once a day.

For Removing Sunburn and Tan —We have heard it said that a good article to remove sunburn and tan is made by taking a handful of bran, pouring a quart of boiling water upon it, letting it stand an hour, and then strain. When cold, put in a pint of bay rum, and wash the face with it two or three times every day. It will do no harm.

For Removing Tan, Blotches, Freckles, Warts and Pimples.—Take two gallons of strong soapsuds, add to this one pint of pure alcohol, and a quarter of an ounce of rosemary. Mix these well together, and they are fit for application. Apply with a linen rag. For the same purpose use horseradish, grated into sweet milk, which will be fit for use in about seven or eight hours.

To Make Court Plaster.—Strain a piece of black silk on a frame, and brush it over with a solution of one ounce of izinglass in twelve ounces of proof spirits, and mix two ounces of tincture of benzoin (Tarlington's Balsam) with it. When dry, repeat the process four or

five times, finishing off with a coat of tincture black balsam of Peru. For a cheaper kind use *common* glue instead of izinglass.

Lip Salve.—This is a preparation extremely useful as a remedy for chapped lips, by applying it freely at bed time. It is made of equal parts of almond or olive oil, and the best white wax, Melt the wax in a clean gallipot, set at the side of the fire, then add the oil. It is customary to color the salve by adding a little alkanet root suspended in a piece of muslin, while the same is hot, and melted, or a little carmine; but this coloring has frequently the inconvenience of reddening a cambric handkerchief if accidentally applied to the lips. Some perfume is also generally added, as bergamot, oil of lavender, oil of cinnamon, &c., but it is not essential.

Another.—Oil of sweet almonds, one fluid ounce; spermaceti, three-quarters of an ounce. Melt, and when nearly cold, add any essential oil you please.

Another.—Take hog's lard washed in rose water, half a pound, red and damask rose leaves bruised, quarter of a pound, work them well together in a mortar, and let them lay two days; then melt the lard and strain it; add to the lard the same quantity of rose leaves, let them lay two days as before, simmer in a water bath, and strain, stirring in five or six drops of otto of roses. Put into pots or boxes for use. This is a beautiful scarlet salve.

Razor Paste.—Emery reduced to an impalpable powder, two parts; spermaceti ointment, one part. Mix together and rub it over the strop.

How to Make Almond Paste.—Pastes of various kinds are used to soften and improve the skin of the hands and arms. Almond paste is most generally used. It is made in various ways: One is—Beat in a mortar four pounds of sweet almonds, blanched and dried, with lavender or Hungary water. Add to this one pound of white drained honey, two ounces of oil of jessamin, half a pound of the best alum powder, and four ounces of orris powder; the whole to be well incorporated. This will keep, if no eggs or milk be added. Almond powder is made by extracting the oil from the almonds by pressure, then drying what remains and grinding it.

Another Way.—Take one pound of sweet almonds, a quarter of a pound of crumb bread, and the yolks of two eggs. Skin the almonds and pound them in a mortar, and sprinkle them with vinegar, that the paste may not turn to oil; add the crumb of bread and the eggs, and moisten the whole with brandy, diluted with an equal quantity of water; mix all this well together, set it over a slow fire, and keep

stirring it all the while, so that it does not burn. Add the brandy and water till the consistence is right.

Another.—Warm in three separate vessels two ounces of sweet almonds blanched and pounded, three drachms of fine white wax, and three drachms of spermaceti. When these are melted, pour them together, and stir them well with a wooden spatula, and throw them into some water; keep stirring in the water, which you must change frequently till the pomade becomes very white. Keep it in rose water, or spring water, which must be changed every day.

Another.—Blanched almonds four ounces; white of one egg; spirit of wine and rose water, q. s. Beat the almonds to a smooth paste in a mortar, then add the white of egg and enough rose water, mixed with one-half its weight of spirit of wine, to give the proper consistence.

Liquid Almond Paste.—Mix six pounds of honey, six pounds of paste of bitter almonds, twelve ounces of oil of bitter almonds, and twenty-six yolks of eggs. The honey should be heated apart and strained; then the almond paste kneaded with it; and, lastly the eggs and almond oil by degrees.

Chapped Hands.—These are very common. Cold weather chills the surface of the skin and prevents a free circulation of the blood, and consequent warmth, and thus induces or aggravates the difficulty. One of the primary causes of chapping or cracking of the skin is the action of soap. The alkali in this eats away the cuticle or outer skin, and thus destroys the natural covering. In cold weather especially, the hands should always be thoroughly rinsed in clean water after washing them with soap. It will be found highly beneficial to wash the skin in a weak solution of vinegar and water, after using soap, and then rinse in clean water. The acetic acid of the vinegar neutralizes the alkali of the soap, and prevents the further action upon the skin, which will take place if the slightest amount of soapy water be left on the hands when they are dried with a towel.

On washing days it will be a special advantage to have a vessel of water with a little vinegar added, to dip the hands into whenever they are taken from the washing water. In washing the hands, it is usually better to use a stiff brush instead of soap, unless they chance to be covered with oil or tar. A brush is more convenient, more effectual, neater, cheaper, and better every way than soap.

A correspondent of the *Scientific American* says that after trying a great number of specifics, he has found sweet cream the best remedy for chapped hands. A weak solution of chlorate of potash is excel-

lent. Wash them in this and they will soon be well. Or apply flesh color court plaster, or collodion. You can get them at any drug store for a trifle. Keep the collodion well corked.

Three drachms each of camphor gum, white beeswax and spermaceti and three ounces of olive oil melted slowly together in a cup on the stove will in a few minutes form an excellent white ointment for anointing chapped hands. Apply before going to bed and put on a pair of gloves.

Camphor Balls are an excellent remedy for chapped hands. They are used also to prevent chapping and to whiten the skin. Take powdered camphor, two drachms; white wax, one ounce; spermaceti, two drachms; oil of almonds, three ounces. Mix and mould into balls in gallipots.

Or melt three drachms of spermaceti and four drachms of white wax with one ounce of almond oil; and stir in three drachms of powdered camphor. Pour the compound into gallipots, so as to form cakes. They may be colored with alkanet, etc.

Another method: Lard, two ounces; white wax, two ounces; powdered camphor, half an ounce; melt, and proceed as before.

Camphor Ice, made by melting spermaceti, one drachm, with almond oil, one ounce, and adding powdered camphor, one drachm, is another excellent preparation. It is improved by a couple of drachms of glycerine, using as much less of the almond oil.

Paste for Chapped Hands.—Wash a quarter of a pound of fresh hog's lard in water, beat it up with the yolks of two new-laid eggs and a large spoonful of honey. Add as much almond paste, or fine oatmeal, as will work it into a paste.

Oatmeal Paste for Chapped Hands.—Take fresh lard, four ounces; honey, six ounces; oatmeal, six or eight ounces; three yolks of eggs; gum arabic powder, one ounce. Mix the honey and the gum first, then the eggs; next the lard, gradually incorporating it in small portions; finally, add the oatmeal, to make the whole into a paste. This, as we know from long experience, is equal if not superior, to the famous Amandine. The original recipe is improved by using half oat and half Indian meal, as Indian is good for whitening the hands. Like the Amandine, it forms with water a creamy lotion, which is not washed off but wiped with a towel.

Soap for Chapped Hands.—Take one bar of yellow soap; cut it up small; add to it the gall of a beef; put it over the fire until the soap is entirely melted; then add one ounce of fine pulverized saltpetre and one pint of alcohol; pour it into a vessel (previously greased,) of

a size to make the soap at least one inch thick. When firm enough to cut, before it hardens, cut it into cakes of a convenient size. This soap is not only a capital preventive of chapped hands, but will be found also excellent for taking grease spots out of woolens, silks, &c.

Bean Flour an Excellent Detergent for the Hands.—Take half a peck of white and well-dried split horse beans; having separated them from their shells, or skins, beat them as fine as possible in an iron mortar, or have them well ground in a mill. Pass the powder through a fine sieve. About four pounds of powder will be obtained from the above quantity of beans.

Cold Cream.—This is very useful for chapped hands or face and softens the face. Any one can prepare it, or it may be obtained at the shops. Melt together in a water bath (that is, a vessel immersed in boiling water, like a carpenter's glue-pot,) eight ounces of fine neat's foot oil or almond oil, three ounces of spermaceti, and one ounce and a half of white wax; when thoroughly melted pour the whole into a pan, which, in winter, must be kept very warm by the fire; then, with a clean flat stick, beat the mass continually until it is uniform in body; pour in half a pint of rose or orange-flower water, and one-fourth of an ounce of spirit of bergamot, or any other perfume desired; then beat rapidly again until the whole of the water and spirit is taken up by the unctuous portions. If made in winter all the materials must be warmed as mixed, or the mass will be lumpy. Lard or sweet oil may be substituted for the almond oil. If care is observed the mass will be as white as snow.

Warts.—A harmless and sure cure for warts may be had by simply taking two or three cent's worth of sal ammoniac, dissolve it in a gill of soft water, and wet the warts frequently with this solution, when they will disappear in the course of a week or two. A weak solution of potash applied in the same manner will have a similar effect. If washed two or three times a day for two or three weeks with strong brine, they will disappear. Equally good for warts on animals. Let a small piece of potash stand in the air till it slacks, then mix into a paste with a little pulverized gum arabic, and after paring off the top of the wart, apply for ten minutes, when wash off and bathe freely in sweet oil or strong vinegar until the alkali is entirely neutralized. One application is sufficient. The wart will surely disappear. So will corns under the same treatment.

To Remove the Unpleasant Odor produced by Perspiration.—This odor is frequently the source of vexation to persons who are subject to it. To remove it much more effectually than by the application of

such costly unguents and perfumes as are in use, it is only necessary to procure some of the compound spirits of ammonia, and place about two tablespoonfuls in a basin of water. Washing the face, hands and arms with this leaves the skin as clean, sweet and fresh as one could wish. The wash is perfectly harmless, and very cheap. It is recommended on the authority of an experienced physician.

For Breath Tainted by Onions.—Leaves of parsley, eaten with vinegar, will prevent the disagreeable consequences of eating onions.

CARE OF THE FEET.

"Of all parts of the body," says Dr. Robertson, "there is not one which ought to be so carefully attended to as the feet." Every person knows from experience that colds, and many other diseases which proceed from colds, are attributable to cold feet. The feet are at such a distance from "the wheel at the cistern" of the system that the circulation of the blood may be very easily checked there. Yet, for all this, and although every person of common sense should be aware of the truth of what we have stated, there is no part of the human body so much trifled with as the feet. The young and would-be genteel-footed cramp their toes and feet into thin-soled, bone-pinching boots and shoes, in order to display neat feet in the fashionable sense of the term. There is one great evil against which every person should be on their guard—we mean the changing of warm for cold shoes or boots. A change is often made from thick to thin-soled shoes without reflecting upon the consequences which might ensue. In cold weather, boots and shoes of good thick leather, both in soles and uppers, should be worn by all. Water-tights are not good, if they are air-tights also; India rubber overshoes should never be worn except in wet, splashy weather, and then not very long at once. It is hurtful to the feet to wear any covering that is air-tight over them, and for this reason India rubber should be worn as seldom as possible. No part of the body should be allowed to have a covering that entirely obstructs the passage of carbonic acid gas from the pores of the skin outward, and the moderate passage of air inward to the skin. Life can be destroyed in a very short time by entirely closing up the pores of the skin. Good warm stockings, and thick-soled boots and shoes, are conservators of health, and consequently of happiness.

To Remove Fetid Perspiration from the Feet.—Bathe them regu-

larly every night. Water and soap are usually sufficient; a strong solution of carbonate of soda, always.

To Protect the Feet in Walking.—Take equal parts of gum camphor, olive oil, and pure beeswax, and mix them together, warm until they are united and become a salve. At night wash the feet well, dry them, then apply this salve, and put on clean stockings, and sleep with them on. Next day the feet will be in excellent train for marching. So says a person who claims to have proved its great value in a journey across the plains to California.

Another Method to Prevent Blistered Feet.—A writer says:—I had for several years two sons at school in Geneva, Switzerland. In their vacations, they in company with their tutor, made excursions through Switzerland, Italy, Germany, &c., on foot; bearing their knapsacks containing the necessary wants for a month. They were provided with common brown soap, and before putting on their stockings turned them inside out, and rubbed the soap well into the thread of them; consequently they never became footsore or had blistered feet.

Remedy for Blistered Hands and Feet.—As a remedy against blistering of hands in rowing or fishing, &c., or of feet in walking, the quickest is, lighting a tallow candle and letting the tallow drop into cold water, (to purify, it is said, from salt,) then rubbing the tallow on the hands or feet—mixed with brandy or any other strong spirits. For mere tenderness, nothing is better than the above, or vinegar a little diluted with water. This is both a preventive and curative.

Cure for Chilblains and Frosted Feet.—Apply common tar to the parts affected, and bind it up with cloth, so as not to interfere with wearing the stocking. Wear this four days or a week. Or dissolve one ounce of white vitriol in a pint of water, and bathe the parts affected very often.

A chilblain ointment that has cured a great many cases is made of two quarts of lard, one pint of turpentine, one-fourth pound of camphor, or less in the same proportions. Mix.

The following is said to be an infallible cure for broken chilblains: The yolk of an egg well beaten up, and a teaspoonful of honey; keep stirring them together, sprinkling flour on it from the flour-dredge whilst you are stirring it to make it of a thickish consistency; to be laid on the wound. I have found this remedy infallible, not only for broken chilblains, but for sores of all kinds.

Cure for Itching Feet from Frost Bites.—Wash the feet every day,

morning and evening, or oftener, with one ounce of hydrochloric acid in eight ounces of rain water.

Cure for Nails Growing in the Flesh.—When the flesh grows over the nails, the proper course to pursue is, instead of cutting away the corners, to cut a notch in the center of the nail, or to scrape it thin in the middle. Nature, then, in her efforts to remedy this accidental defect, promotes the growth of the nail in the central thin parts, and thus the extremities, which are imbedded in the flesh, are left to recover their former position. This simple and very ingenious plan has been found far more efficacious than removing the nail by a painful surgical operation. Do not fail to persevere in it and you will surely find relief. Cut or scrape as deep as you can bear, and repeat the process every few days if necessary. Then avoid afterwards cutting the corners of the nail too short. The tendency of the nail is to grow most toward the place where it is cut most.

It is stated by a correspondent of the *Medical and Surgical Journal* that cauterization with hot tallow is an immediate cure for in-growing nails. He says: "The patient on whom I first tried this was a young lady who had been unable to put on a shoe for several months, and decidedly the worst case I had ever seen. The disease had been long standing. The edge of the nail was deeply undermined; the granulations formed a high ridge, partly covered with skin, and pus constantly oozing from the root of the nail; the whole toe was swollen, and extremely tender and painful. My mode of proceeding was this: I put a very small piece of tallow in a spoon and heated it over a lamp until it became very hot, and dropped two or three drops between the nail and granulations. The effect was most magical. Pain and tenderness was at once relieved, and in a few days the granulations were all gone, the diseased parts dry and destitute of feeling, and the edge of the nail exposed so as to admit paring away without any inconvenience. The cure was complete, and the trouble never returned. I have tried this plan repeatedly since, with the same satisfactory results. The operation causes little if any pain, if the tallow is properly heated.

Cure for Corns.—The most effective cure is to be found in the application of a circular disk of felted wool or of cotton with a hole in the middle to receive the corn. This may sometimes be purchased at drug stores. But you can readily prepare it yourself. It is made to adhere by brushing one surface of the wool with a solution of izinglass or similar preparation. This relieves the corn by removing from it

the pressure of the shoe : and by persevering in this simple treatment, the corn will, in time, entirely disappear.

A strong solution of pearlash applied to corns, will soften them so that they may easily be drawn out.

The application of powdered unslacked lime, made into a paste with sweet oil, and spread on a piece of linen rag, every night, and washed off in the morning, is found by some to be very efficacious. Nitrate of silver is strongly recommended by many eminent men for the cure of corns ; but caustic should be used only by medical men, as it may prove highly dangerous in the hands of the unskillful.

Half a cranberry bound on a corn, it is said, will soon kill it. We have known the application of a red wafer to cure them. When worn off it should be renewed until the cure is complete. To cut off the head gives temporary relief.

A cure may be accomplished by cautiously digging out the root, which may be thus done by a steady hand : steep the corn in hot water, and rub it with a coarse towel, or the finger nail will not remove it ; place a small quantity of oil on the corn, and let it soak well in. Then with a pen knife, or what is still better, a sharp bodkin, work it out of its bed as you would a thorn. Not a drop of blood should be shed during the operation, and its success may be tested by finding pressure unaccompanied by pain. Should inflammation have been excited—which may be known by the redness prevailing around it—rest and emollient applications, such as linseed poultice, or a fig, will be found beneficial.

A correspondent of the *London Field*, says: Take a lemon, cut a piece of it off, then nick it so as to let in the toe with the corn, the pulp next the corn, tie this on at night so that it cannot move, and the next morning a blunt knife will remove the corn to a great extent. Two or three applications will cure.

Bunions.—Produced by pressure on the great toe joint by tight shoes or boots, causing swelling, enlargement of the joint, pain, and sometimes inflammation. The pressure of the boot or shoe must be permanently removed from the bunion until it completely disappears.

Application of tincture of iodine is said to afford great relief. Subdue the inflammation by soaking the foot frequently in warm water.

MANAGEMENT OF THE HAIR.

OF all the natural accessories of human beauty, none, except the eyes, are more important than the hair, and certainly none is so frequently abused by the follies of fashion.

The hair itself always indicates, by the manner of growth, the most becoming way in which it can be arranged or dressed, and this is always simple. A face that is naturally beautiful, or naturally queenly, can never be made more so by what is falsely termed "artistic" hair dressing; nor can a face that is naturally plain, or naturally vulgar, be made the less so by such distortion of the locks. As for the various "bandolines" and other glutinous abominations with which so many ladies abuse their hair, they are simply offences against common cleanliness. It may be said with particular truth about the hair, if about nothing else, that "Nature unadorned is adorned the most."

So far from being true is it that oils and pomatums increase the lustre of the hair, their effect is to diminish that polish which it naturally possesses; while, whatever gloss they may give to the hair which is naturally dull, is false, and, like all other falsities, disgusting. Absolute cleanliness, by means of water alone, to commence, followed by brushing in the direction of the hair itself in a dry state, is the true method of giving to the hair all the polish of which it is susceptible; and it is the effect of oil of all kinds to disturb or injure this; to say nothing of the disgust and necessary dirtiness of greasy hair.

Curling the Hair.—It is the effect of oils also to prevent it from curling; and this object is most effectually obtained, if without artificial means, by curling it when wet, and suffering it to dry in that state. And as it happens that almost all hair has a tendency to curl in one direction rather than another, it is useful to study that tendency, so as to conform to it in the artificial flexure given. As to artificial applications, the whole of the so-called curling fluids are mere impositions; while one, which is really effectual, and at the same time inoffensive, is a weak solution of izinglass, by which a very firm and perpetual form can be given the hair.

To Preserve the Hair.—As to men, when the hair begins to fall out, the best plan is to have it cut short, give it a good brushing with a moderately stiff brush, while the hair is dry, then wash it well with a suds of castile soap and tepid water, then rub into the scalp, about the roots of the hair, a little bay rum, brandy or camphor water. Do

this twice a month. The brushing of the scalp may be profitably done twice a week. Damp the hair with water every time the toilet is made. Nothing ever made is better for the hair than pure soft water, if the scalp is kept clean in the way we have named.

Nothing but pure soft water should ever be allowed on the heads of children. It is a different practice that robs our women of their most beautiful ornament long before their prime. The hair of our daughters should be kept within two inches until their twelfth year.

Those who must use oils, &c., will find the following some of the most simple, harmless, easily prepared and best :

Hair Oil.—Take equal parts pure olive (sweet oil) and cold-pressed castor oil, and to each pint of the mixture add one-fourth pint brandy, and the same of cologne. Persons who have used this for years prefer it to any other.

For a Very Fine Perfumed Oil.—Dip cotton wool in to clear olive oil, and, having procured a tall glass vessel, lay the cotton alternately with jessamin or other flowers. In a few days the flowers will have imparted their perfume to the oil, which may then be squeezed out for use ; and the cotton may be employed by laying in band boxes or drawers where perfume is required.

Another.—Melt together four ounces of spermaceti and one of lard ; add bergamot and rose water.

Another.—Melt one drachm of white wax, one of spermaceti, and two ounces of olive oil ; add two ounces of rose water, and half an ounce of orange-flower water.

Another.—Melt together equal parts of almond oil and white wax. Add to the mixture, put in a marble mortar or strong glass basin, a few drops of some perfumed water, as rose, orange, or elder-flower water, and rub them together with a pestle till they are thoroughly incorporated ; then add more and more drops, rubbing all the while, till the mixture when cold, is of the consistence of cream.

Another—Very simple and very nice.—Cocoonut oil melted with a little olive oil and scented as preferred.

Pomades.—A very good pomade is made of white wax one-half ounce, spermaceti one-half ounce, olive oil six ounces.

Excellent Pomatum for the Hair.—Melt four ounces of beef marrow, six ounces of lard, half an ounce of yellow wax. Perfume while cooling with oil of bergamot.

Pomade Divine—Take of beef marrow three pounds, put it into an earthen vessel and cover it with cold water ; change the water daily

for a few days, using rosewater the last day. Pour off and press out the water; add to the marrow four ounces of stryax, benzoin, and Ohio turpentine, one ounce of orris powder, half an ounce each of powdered cinnamon, cloves and nutmeg. Set the vessel in hot water, and keep the water boiling for three hours; then strain. This is one of the best preparations made for softening the skin and hair.

Common Soft Pomatum.—Melt together equal parts of beef or mutton suet and hog's lard; while they are liquid, put to it a little bergamot, or any other perfume that may be agreeable, and heat the whole well together, and then pour the mixture into pots.

Another Pomatum. Soak in water for two or three days half a pound of clean beef marrow and a pound of fresh hog's lard, changing and beating it every day. Put it into a sieve, and when dry into a jar, and the jar into a sauce pan of water. When melted pour it into a basin, and beat it with two spoonfuls of brandy; drain off the brandy, and add bergamot, or any other perfume.

Another.—An ounce of hog's lard, one of beef marrow, one of spermaceti, and a pint of almond oil, melted together; add the oil of bergamot and oil of roses, or any other perfume.

Hog's lard alone, perfumed, will serve for pomatum for ordinary purposes, if it be required very soft; and oil of almonds and spermaceti melted together form a useful unguent for the hair; a little bergamot may be added.

Hard Pomatum.—This may be made by melting together beef and mutton suet, the former being the largest proportion, and making it up into rolls with paper around them.

Pomades Made by Infusion.—Melt together beef suet and hog's lard; to this add the petals of roses, orange-flower, or other sweet scented flowers; let it remain at rest for twenty-four hours; remelt and stir well; put into canvas bags and press to separate the solid from the fluid part. Repeat this process with the same fat perhaps ten or twelve times, till the pomade has enough perfume. It requires six pounds of fresh rose petals to make one pound of good pomade.

Highly scented pomades are often preferred to scented oils. Different sorts of hair often require different treatment; for what agrees with one makes the other harsh and dry.

Cold Cream is often used: It is made with one-fourth ounce of spermaceti, and one-quarter ounce of white wax; dissolve by putting the basin into which you are going to mix it in hot water; then add one ounce each of oil of almonds and rose water.

To Make Bandoline—For Glossing the Hair.—1. Irish or Iceland moss, boiled in water, and the strained liquid perfumed.

2. Quince seed, half a teaspoonful; linseed, one tablespoonful, and a pinch of white mustard seed. Boil in a pint of soft water to half, and scent with oil of almonds.

3. Boil a tablespoonful of linseed oil for five minutes in half a pint of water.

4. Izinglass, one and a half ounces; water, one pint; proof spirit, two fluid ounces. Dissolve the izinglass in the water by heat, add the spirit and scent with almond oil.

5. Tragacanth, one ounce; rose water, one pint. Bruise the gum, digest for three days and strain.

Any of these may be colored with cochineal if required.

Rose Bandoline.—Take tragacanth, six ounces; rose water, one gallon; mix, and after standing two days strain, and add otto of roses to perfume. May be colored with a little cochineal. The almond bandoline may be made by substituting the oil of bitter almonds for the otto of rose.

Cure for Baldness.—A medical journal says that the decoction of boxwood has been successful in cases of baldness. Four large handfuls of the stem and leaves of the garden box are boiled in three pints of water, in a closely covered vessel for fifteen minutes, and allowed to stand in an earthen jar ten hours or more; the liquid is then strained and one ounce and a half of Cologne added, and with this solution the head is well washed every morning.

Cause and Remedy of Gray Hair.—An intelligent medical writer has recently asserted that an undue proportion of lime in the system is the cause of premature gray hair, and advises to avoid hard water, either for drinking pure, or when converted into tea, coffee, or soup, because hard water is always strongly impregnated with lime. Hard water may, however, be softened by boiling it; let it become cold, and then use it as a beverage.

To Preserve Hair from Falling off or Turning Gray.—A correspondent of the *Western Christian Advocate* gives the following: One-half ounce sugar of lead, one half ounce lac sulphur, one ounce glycerine, one quart rain water. Saturate the hair and scalp with this twice or three times per week, and you will soon have a head free from dandruff and gray hairs, while the hair will be soft and glossy. Better than any of the advertised "hair dyes."

Economical Hair Wash.—Take one ounce of borax and half an ounce camphor. Powder these ingredients fine and dissolve in one

quart of boiling water. When cool the solution will be ready for use. Damp the hair with this frequently. It is claimed for this that it not only effectually cleanses and beautifies, but strengthens the hair, preserves the color, and prevents baldness.

Another Wash said to thicken the hair and prevent its falling out: Distil as cool and slowly as possible two pounds of honey, a handful of rosemary and twelve handfuls of the curlings or tendrils of grapevines, infused in a gallon of new milk; from which about two quarts of wash will be obtained.

Gen. Twiggs' Celebrated Hair Restorative.—Mix with a gill of rose-water one drachm of milk of sulphur and half a drachm of sugar of lead. For restoring hair to its original color, and to cure baldness.

Astringent Hair Wash.—Borax, two drachms; spirits of rosemary. two ounces; rosemary water, fourteen ounces.

Hair Dye.—It is not generally known that a liquid that will color the human hair black and not stain the skin, may be made by taking one part of bay rum, three parts of olive oil, and one part of good brandy, by measure. The hair is to be washed with this mixture every morning, and in a short time the use of it will make the hair a beautiful black, without injuring it in the least. The articles must be of the best quality, mixed in a bottle, and shaken well before applied.

One drachm nitrate of silver, one ounce spirits ammonia, and one ounce soft water make a durable dye for coloring the hair, to be dried in the sun. One ounce nitrate of silver to a pint of rose water, put up in colored bottles is extensively sold in the shops as a vegetable dye. The directions for its use are: the hair to be freed from grease by washing with pearlash water or soda, and when perfectly dry the dye applied by means of a brush. It does not "strike" for several hours, but may be hastened by exposure to sunshine. A popular and very fine brown dye is composed of sulphate of copper, ammonia and prussiate of potassa; but it is exceedingly poisonous.

Lead Combs.—Persons with red hair sometimes use lead combs which darken the hair. A little pomatum used at the same time will help to produce a fine auburn.

Fine Teeth Combs are injurious as they inflame the tender skin, and split and crush the hair.

CARE OF THE EYES.

MILTON'S blindness was the result of over work and dyspepsia. One of the most eminent American divines, who has for sometime been compelled to forego the pleasure of reading, has spent some thousands of dollars in vain, and lost years of time, in consequence of getting up several hours before day and studying by artificial light. His eyes will never get well. Multitudes of men and women have made their eyes weak for life, by the too free use of eyesight in reading fine print and doing fine sewing. In view of these things, it will be well to observe the following rules in the use of the eyes: Avoid all sudden changes between light and darkness. Never begin to read, write, or sew for several minutes after coming from darkness to a bright light. Never read by twilight, or moonlight, or on a very cloudy day. Never read or sew directly in front of the light, or window or door. Never sleep so that on the first awakening, the eye shall open on the light of a window. Do not use the eyesight by light so scant that it requires an effort to discriminate. The moment you are instinctively prompted to rub your eyes, that moment cease using them. If the eyelids are glued together on waking up, do not forcibly open them; but apply the saliva with the finger—it is the speediest diluent in the world; then wash your eyes and face in warm water.

Save your eyes by sitting in such a position as will allow the light to fall obliquely over the shoulder while reading or sewing; by not using the eyes for such purposes by an artificial light, especially gas light; by avoiding the special use of the eyes in the morning before breakfast; by resting them for half a minute or so, while reading or sewing, or looking at things at a distance or up to the sky. Relief is immediately felt by so doing. Never pick any collected matter from the eyelashes or corners of the eyes with the finger nails; rather moisten it and rub it away carefully with the ball of the finger. Keep the feet warm, and never cool the head suddenly under penalty of inflammation of the eyes. It is better to bathe the eyes on the outside at night than morning, but it will not do harm to bathe them both morning and evening. The moment the eye feels tired, the moment you are conscious of an effort to read or sew; lay aside the book or needle and take a walk for an hour, or employ yourself in some active exercise not requiring the close use of the eyes.

In the *London and Edinburgh Philosophical Magazine*, is an ac-

count of sudden loss of the power of distinguishing colors, produced by over taxing the eyes. A sea captain, who was in the habit, when time hung heavy on his hands, of occupying it by working at embroidery, was one afternoon engaged upon a red flower, and, being anxious to finish it, prolonged his labor until twilight came on, and he found it difficult to select the suitable colors. To obtain more light he went into the companion way, and there continued his work. While thus taxing his eyes, his power of distinguishing the colors suddenly vanished. He went upon deck, hoping that an increase of light would restore his vision. In vain. From that time to the present, more than ten years, he has remained color blind. Mr. White Cooper, who brought this case to notice, says that, after the grand Exhibition of 1851, several instances came under his notice in which the sensibility of the retina was temporarily blunted by the excitement to which it was exposed in that brilliant scene.

Amaurosis, one of the severest of eye diseases, is now said to be produced by the use of tobacco. The oculist Sichel recently read a paper before the Paris Societe Medico-practique, in which he describes several cases. One of them was a man of forty, who had become quite blind from the use of tobacco, and whose amaurosis, which had resisted all other treatment, was cured by antiphlogistic and derivative regimen, and by giving up the use of tobacco.

A physiologist of Cincinnati has discovered that wearing moustaches strengthens the eyesight, and that the removal of these hairy appendages has the effect of causing general diseases of the eye.

Inflammation of the Eyes.—In all diseases of the eye the diet must be light and unstimulating, no animal food nor pastry, no spirits, no mental or bodily fatigue, nor excitement of any kind, but so far as possible quiet and rest, cheerfulness and content. Bathe the eyes with pure soft water, cold or warm, as may be most agreeable. Keep the bowels open by eating perfect ripe fruits, and if constipation exists use injections of cold water. Drink freely of cold water instead of tea and coffee, and abandon tobacco forever. In nine cases out of ten these simple means will prove more effectual and perform a more permanent cure than any strong medicines internal or external that can possibly be prescribed. In severe cases the patient must be careful to occupy a dry, well aired, and darkened room.

If some stronger application is desired, there is nothing better than a little alum boiled in a teacupful of milk, and the curd used as a poultice, or simply a poultice of slippery elm bark, or of raw potato scraped fine. An eye-water which has become very famous as one of

the best, if not the very best, is made as follows: Take of sulphate of zinc ten grains, sugar of lead twenty grains, rose water one quart. Dissolve each separately, then mix and filter through blotting paper, and it is ready for use. Only a pint of rose water is frequently used, which doubles the strength of the preparation. Pure rain water will answer in place of the rose water. And if blotting paper cannot be had it may be filtered through white flannel. If after the ingredients are dissolved and mixed they can be allowed to stand a couple of days before filtering, shake it occasionally, it will improve the preparation. Wash the eyes with this two or three times a day.

To Reduce Inflamed Lids.—Tie a small bit of ice in the corner of a thin handkerchief, and pass it back and forth over the closed eye, resting at intervals, when the cold is too intense. This has been found very efficacious.

Lime in the Eye.—A strong solution of sugar, inserted drop by drop under the eyelids, will completely prevent the caustic action of the lime. It should be done immediately.

Sty on the Eyelid.—Put a teaspoonful of tea in a small bag; pour on it just enough boiling water to moisten it; then put it on the eye pretty warm. Keep it on all night, and in the morning the sty will most likely be gone; if not a second application is sure to remove it.

To give Brilliancy to the Eyes.—Shut them early at night, and open them early in the morning; let the mind be constantly intent on the acquisition of human knowledge, or on the exercise of benevolent feelings. This will scarcely ever fail to impart to the eyes an intelligent and amiable expression.

PRESERVATION OF THE TEETH.

THE causes of caries, or decay, are principally the too free use of acids, alkalies, confectionery and pastry, and the collection of food between and around the teeth. The most destructive of them are acids; confectionery and fruits being converted into acids when allowed to remain in the mouth, are also classed with them. These all act directly upon the teeth. But alkalies used as freely as we use them in our bread, rich pastry, and most kinds of rich food, cause a derangement of the system, and as a consequence a vitiated state of the secretions of the mouth, thereby producing the same effect as the acids, although perhaps not to so great an extent.

I do not pretend to say that decay can be prevented in all cases, for some teeth are defective in their organization—the effect of disease during their formation—or from some cause still further back. But it is a well established fact that by a proper attention to the kind of food we eat, and a *thorough system of cleansing*, a perfectly-organized set of teeth may be preserved from decay, and even those that are soft may be saved much longer than if no care or attention is paid to them. Not a particle of food of any kind should be allowed to remain between them. The brush should be used before breakfast and after each meal. Brush lengthwise of the teeth, or up and down, as well as across. The brush should be of medium stiffness, neither too stiff, nor yet too soft—for the one will wear the teeth in the course of time, and the other will not thoroughly cleanse—and it should have notches cut across it, leaving ridges crosswise, which will the more readily pass between the teeth. Cold water is sufficient in many cases to keep the teeth from stains; but should that be insufficient, a good reliable dentifrice, or tooth powder, should be used once or twice each day. And should it be necessary to take acids into the mouth, or medicines containing them, a weak solution of carbonate of soda, or soap tooth powder, should be used at once to neutralize the acid.

Too much cannot be said in favor of cleanliness, or too great care taken to preserve the teeth from decay; for with the most strict attention to their preservation, some teeth will decay, owing to hereditary causes or otherwise. Such teeth should be carefully watched, and should be examined two or three times a year by some good, reliable dentist, whose aim is not to see how much he can manage to do for you, but how long he can make your teeth last. Then when a cavity of sufficient size makes its appearance, have it *well filled*, and decay will be arrested for years. But unless a tooth is filled well, it may as well not be filled at all; the filling only covers up the decay, and the patient thinks all is right till after a few weeks or months—the tooth having continued to decay—the filling drops out, exposing a much larger cavity, and in many cases an exposure of the nerve, and consequent loss of the tooth, or a large bill for treatment of the nerve and refilling.

In a paper read before the American Dental Association recently, Dr. Atkinson stated that perverted habits would account for the prevalence of dental disease, and that a well-regulated course of life would secure good teeth and the enjoyment of health. He gave the following rules to be observed: Never expectorate, but swallow saliva, eat regularly and discard lunches; never eat after weariness and fatigue

before first drinking; never eat to repletion; keep the teeth and the entire body clean; avoid taking that which is not food; exercise through the day, and take uninterrupted rest at night.

TOOTH POWDERS AND WASHES.

Those who brush their teeth carefully and thoroughly with cold or tepid water and a soft brush generally have no occasion to use powder. Should any little incrustation or tartar appear on the sides or at the back of the teeth, which illness and very often the constant eating of sweetmeats, fruit, and made dishes containing acids will cause, put a little magnesia on your brush, and after two or three applications it will remove it. Tartar is an incrustation of a hard, stoney substance which tends to destroy both the teeth and gums.

Yet when properly constituted, powders assist in preserving a healthy condition of the teeth, and promote healthy digestion. The daily employment of a cleansing dentifrice will not only remove the oftentimes injurious remains of food, but will also generally prevent the accumulation of tartar, or other injurious secretions. Many tooth powders advertised for sale are very pernicious.

Charcoal, made very fine, forms an excellent powder. It cleanses the mouth mechanically and chemically. Alone it is dusty, and should be mixed with an equal weight of prepared chalk; and, if requisite, scented with a drop or two of oil of cloves. Charcoal made of burned bread powdered and sifted, a little salt, and orris root, constitute a good powder. A recent writer recommends every man, woman and child to keep a little pulverized charcoal in their bedrooms, and on retiring at night to put as much as can be laid on a sixpence in the mouth, working it about among the teeth with the tongue.

Septimus Piesse says, By a careful use of the following tooth-powder frequent causes of early loss of teeth will be prevented: Take four ounces of burnt horn, two ounces of orris-root powder, one ounce of powdered myrrh, half an ounce of powdered borax, and half an ounce of cochineal. In mixing the ingredients, it is very necessary that the cochineal be thoroughly triturated with the burnt horn, prior to the addition of the other ingredients. This will require nearly an hour's careful rubbing in a mortar, and it is only complete when the color of the mixture assumes a lavender hue, which color is the best criterion of perfect blending. Finally mix in the other powders, together with one drachm of otto of cloves; then preserve for use in stoppered bottles.

But the safest, cheapest, most universally accessible and most efficient tooth wash is a piece of white soap, with a moderately stiff brush every morning and evening.

TOOTH ACHE.

A remedy pronounced infallible is a mixture of equal quantities of pulverized alum and salt placed in the hollow tooth on a small piece of cotton wet so as to cause the mixture to adhere. Creosote introduced into the hollow tooth on cotton gives relief. Crude coal oil possesses the same properties and may be used for the same purpose. Gum copal, dissolved in chloroform, forms an excellent compound for filling the holes of decayed teeth. The application is simple and easy. Clean out the cavity, and moisten a small piece of cotton with the solution; introduce it into the decayed part, and the relief is almost instantaneous. It is said that a roasted onion bound upon the wrist, on the pulse, will stop the most inveterate toothache in a few minutes. Worth trying.

THE EAR AND VOICE.

Ear-Ache.—Ear-ache is usually caused by a sudden cold. Steam the head over hot herbs, bathe the feet, and put into the ear cotton wool wet with sweet oil and paregoric. M. Emille Duval, of Lyons, France, says that he has, in person, found relief in severe ear-ache, after other means had been tried in vain from the use of a mixture of equal parts of chloroform and laudanum; a little being introduced on a piece of cotton. The first effect produced is a sensation of cold; then there is a numbness, followed by a scarcely perceptible pain, and refreshing sleep.

Accumulation of Wax in the Ear.—To remedy this, which is a very frequent cause of deafness, introduce a small piece of cotton wool, upon which a little oil of almond has been dropped, into the ear, and let it remain there for a day or two. Then syringe the ear with a little warm milk and water, or a solution of soap, or with a solution of common salt in water in the proportion of two drachms of the former to half an ounce of the latter. The solution of salt is the best solvent of accumulated wax in the ear.

Deafness.—Temporary deafness, arising from cold, sitting in a

draught, and other causes, may be relieved and cured by letting fall into the ear ten drops of a mixture of sweet oil and one of glycerine every night until the duct which leads from the ear to the nose is cleared; this will be known by the sensation of the fluid passing at once from the ear into the nostril. If, from inattention, the wax becomes hardened, and thus also induce temporary deafness, then the above mixture is to be applied for two or three days, and followed by thoroughly washing the ear in soap and warm water. No hard probe or pick is to be put into the ear on any account, as it is very liable to injure the membrane.

How to Cure Stammering.—If you are accustomed to stammer occasionally when speaking, you will find it an excellent preventive to speak very deliberately, and never in a hurry; let each syllable have its own distinct enunciation.

The following is simple, safe, and said to be certain of doing good, if not making a perfect cure: Let the stammerer begin at once to beat time for *every word he utters*, either in talking or reading, just as if singing the words. If this does not stop the hesitancy, then try beating time to every syllable, and afterwards gradually run into beating for words, and then for sentences. The beating can be done with the foot or with a hand, or with one finger of the hand, or by striking the thumb and finger together. Thus: ‘When (beat) in (beat) the (beat) course (beat) of (beat) hu- (beat) man (beat) e- (beat) vents, (beat) etc.’ A persistent course of measuring the words until the stammerer can read and talk straight forward, though slowly, for an hour at a time, will doubtless overcome the habit of stammering. We do not say that this will always effect a perfect cure in the worst cases, where the stammering or habit has been long established, but from the nature of the defect it must be greatly modified, if not cured.

HEALTH.

Reason's whole pleasure, all the joys of sense,
Lie in three words,—health, peace and competence.

There is this difference between those two temporal blessings, health and money: money is the most envied, but the least enjoyed; health is the most enjoyed but the least envied; and this superiority of the latter is still more obvious when we reflect that the poorest man would

not part with health for money, but the richest would gladly part with all their money for health. Every man that has felt pain, knows how little all other comforts can gladden him to whom health is denied.

Health is the greatest of all bodily pleasures but the least thought of. It is the vital principle of bliss. It is through inward health that we enjoy all outward things. Health is the poor man's riches, and the rich man's bliss. It is substantially the wealth of individuals, communities, and nations; or, at all events, the source from which their prosperity must come. No sick man is prosperous, or even happy. The surplus proceeds of labor accrue only to those in health, and the daily enjoyment of life to them alone. This being so, then what subserves that important end must not be overlooked or undervalued.

Says Dr. Wm. E. Cole, in the *Boston Medical Journal*: The fact that an English woman lives half a century before she begins to wane, while our females reach their prime mostly at little over half that age, and that another lustrum finds them on the decline, ought to strongly arrest our attention, and induce us to examine whether we are right in attributing all this difference to climate, and whether we might not find in some error or habit of early life, at least a partial explanation of the disparity. Health is the natural condition of living beings. Disease is a state contrary to nature. If you wish the great happiness and the inestimable blessing of being always in good health down to a serene old age, learn while young to take care of that "good constitution" with which a benign Creator has intrusted you. It is easier to preserve health, than to recover it; and to prevent diseases, than to cure them. One half the time ordinarily spent in vain efforts to *regain* lost health would suffice to *preserve* it. The immutable laws of Divinity never conflict: all of God's works are in harmony with each other; His will and His ways are always consistent. He made man to be healthy; He made man to enjoy all the necessities of life; He made man to be happy. Had man never transgressed, sickness and suffering would have been unknown; health and happiness would have been universal; we should never have experienced want; every need would have been bountifully supplied. God created us in the midst of, and surrounded us with plenty. His laws have not been changed. The same wise provisions that were made for us at the Beginning remain for us still. We have only to regain that wisdom with which we were created and which was lost by man's fall, to reinstate us into the possession of all the enjoyments the heart could then desire, health, wealth and happiness complete.

This we do not expect wholly to do before that final great day; but because we do not expect to attain perfection does not justify us in giving up to despair, nor in abandoning ourselves to disease or poverty. Neither is a necessity of nature, but both the inheritance of folly. Had man never sinned sickness and sorrow had never existed. Poverty, disease and death, if not directly traceable to actual sin is none the less in consequence of man's original downfall. We can not shun death, nor can we participate in perfect contentment, yet all who acknowledge the existence and goodness of God believe, or ought to believe, that the freer we are from sin, the nearer we live in accordance with Nature's laws and the laws of God, the more complete is our welfare, temporal as well as spiritual; that whatever best promotes the interest of our soul promotes also most the health of our body and comfort of our mind.

RULES FOR PRESERVING HEALTH.

1. Rise early, and make it a point to retire at ten o'clock; seven hours' sleep should suffice; although less may do in some cases, and in others, more may be required.

2. Wash your whole body from head to foot, at least once a week, Winter and Summer, and rub well with a flesh-brush or coarse towel, immediately after washing.

3. Never sleep in a warm room, or in a room that has not been properly ventilated in the day time.

4. Never sit or sleep in a draft of air; it is almost always hurtful, and when over-heated or covered with perspiration, exceedingly so.

5. Dress according to the season; but be careful not to leave off your Winter clothes before the warm weather has fairly set in. This rule should be particularly observed by persons who are subject to sore throat, bronchitis, chronic cough, and such like weaknesses.

6. Avoid all kinds of heavy and indigestible food, such as rich pastry, fat, heavy, farinaceous diet, warm bread, spices, mustard, pepper, &c.

7. Avoid all stimulating drinks, brandy, beer, wine, and content yourself with cold water, milk, light and unsiced chocolate, weak black tea, and syrups made of currants, raspberries, strawberries, or other kinds of wholesome and unmedicinal fruit. Never use tobacco in any shape, except for medicinal purposes.

8. Never keep on wet or damp clothes, stockings, &c., and never sleep on damp sheets.

9. Do not expose yourself to keen, sharp winds, and avoid the raw and damp evening air.

10. Live as nearly as possible in the same temperature; keep your room moderately warm, and make it a point never to sit near the fire.

11. Eat your meals at regular hours; eat slowly; chew every mouthful well, and do not swallow it until it is properly mixed up with saliva. If possible, take about an hour for each meal, and never eat so much as to leave the table with a sense of repletion and oppression, do not forget to clean your teeth with a soft tooth brush after eating, and never indulge in the abominable habit of picking them.

12. Avoid every kind of food or drink which naturally disagrees with you; take a little exercise in the open air every day, but not in any kind of weather; select particularly fine, bracing and balmy weather for a walk or ride; exposure to rainy, windy, raw or damp weather never does anybody any good.

RULES FOR WINTER.

Never go to bed with cold, damp feet.

In going into a colder air, keep the mouth resolutely closed, that by compelling the air to pass circuitously through the nose and head, it may become warmed before it reaches the lungs, and thus prevent those shocks and sudden chills which frequently end in pleurisy, pneumonia, and other serious forms of disease.

Never sleep with the head in the draft of an open door or window.

Let more cover be on the lower limbs than on the body. Have an extra covering within easy reach in case of a sudden and great change of weather during the night.

Never stand still a moment out of doors, especially at street corners, after having walked even a short distance.

Never ride near the open window of a vehicle for a single half minute, especially if it has been preceded by a walk; valuable lives have thus been lost, or good health permanently destroyed.

Never put on a new boot or shoe in beginning a journey.

Never wear India rubbers in cold, dry weather.

If compelled to face a bitter cold wind, throw a silk handkerchief over the face; its agency is wonderful in modifying the cold.

Those who are easily chilled on going out of doors should have some cotton batting attached to the vest or other garment, so as to protect the space between the shoulder blades behind, the lungs being

attached to the body at that point; a little there is worth five times the amount over the chest in front.

Never sit more than five minutes at a time with the back towards the fire or stove.

Avoid sitting against cushions in the backs of pews in churches; if the uncovered board feels cold, sit erect without touching it.

Never begin a journey until breakfast has been eaten.

After speaking, singing or preaching in a warm room in winter, do not leave it for at least ten minutes, and even then close the mouth, put on the gloves, wrap up the neck, and put on cloak or overcoat before passing out of the door. The neglect of this has laid many a good and useful man in a premature grave.

Never speak under a hoarseness, especially if it requires an effort or gives a hurting or a painful feeling, for it often results in permanent loss of voice, a life-long invalidism.

DR. HALL'S PHYSIOLOGICAL APHORISMS.

1. The foundation of three-fourths of all cases of consumption is laid before the age of twenty-five years; in women, during their teens.

2. The hereditary element is not of special account as a cause of consumption, as less than twenty-five per cent. of cases are clearly of consumptive parentage.

3. One of the ruling causes of diseases and premature death in large cities, is found in that exhausting strain of the mental energies in the struggle for subsistence—a death race for bread.

4. Insanity runs in families, but as in the case of family likeness, it sometimes overleaps a generation or more.

5. Personal resemblance entails like characteristics of mind and disposition.

6. A current of the purest air from the poles, for half an hour, on a person sleeping, sitting still, or overheated, is a thousand fold more destructive to health and fatal to life than the noisomeness of a crowded room or vehicle, or the stench of a pig-sty for thrice the time.

7. To exercise in weariness, increased by every step, is not only not beneficial, it is useless, and worse than useless; it is positively destructive.

8. As no good traveler, after having fed his horse, renews his journey in a trot, but with a slow walk, gradually increasing his pace, so, in getting up to address an assembly for a continued effort, the first

few sentences should be uttered in a low, slow tone, gradually intensified, otherwise the voice will break down in a few minutes with coughing or hoarseness.

9. A growing inability to sleep in sickness is ominous of a fatal result; in apparent health, it indicates the failure of the mind and madness, so, on the other hand, in disease or dementia, any very slight improvement in the sleeping should be hailed as the harbinger of restoration.

10. No one can possibly sink if the head is thrust entirely under water and in this position a novice can swim as easily as walk, and get to shore readily by lifting the head at intervals for breath.

11. Intense thirst is satiated by wading in water, or by keeping the clothing saturated with water, even if it is taken from the sea.

12. Water cannot satisfy the thirst which attends cholera, dysentery, diarrhea, and some other forms of disease; in fact, drinking cold water seems to increase thirst, and induce disagreeable sensations; but this thirst will be perfectly and pleasantly subdued by eating a comparatively small amount of ice, swallowing it in as large pieces as practicable, and as much as is wanted.

13. Inflammations are more safely and far more agreeably subdued by the application of warm water than of cold.

14. Very excessive effort in a short space of time, as in running or jumping a rope, etc., has repeatedly caused instant death by apoplexy of the lungs, the exercise sending the blood there faster than it can be purified by the more infrequent breathing on such occasions.

15. No disease comes without a cause or warning; hence endeavor to think back for the cause, with a view to avoid it in future, and on the instant of any unpleasant bodily sensation cease eating absolutely until it has entirely disappeared, at least for twenty-four hours, if still remaining consult a physician.

16. The more clothes a man wears, the more bed-covering he uses, the closer he keeps his chamber, whether warm or cold, the more he confines himself to the house, the more numerous and warm his night garments, the more readily will he take cold, under all circumstances; as the more a thriftless youth is helped, the less able does he become to help himself.

FURTHER HEALTH HINTS BY DR. HALL—FOLLIES.

1. To think that the more a man eats the fatter and stronger he will become.

2. To believe that the more hours children study at school the faster they learn.

3. To conclude that if exercise is good for the health, the more violent and exhausting it is, the more good is done.

4. To imagine that every hour taken from sleep is an hour gained.

5. To act on the presumption that the smallest room in the house is large enough to sleep in.

6. To argue that whatever remedy causes one to feel immediately better, is "good for" the system without regard to more ulterior effects. The "soothing syrup," for example, does stop the cough of children, and does arrest diarrhea, only to cause, a little later, alarming convulsions, the more fatal inflammation of the brain, or water on the brain; at least, always protracts the disease.

7. To commit an act which is felt in itself to be prejudicial, hoping that some how or other it may be done in your case with impunity.

8. To advise another to take a remedy which you have not tried on yourself, or without making special inquiry whether all the conditions are alike.

9. To eat without an appetite, or continue to eat after it has been satiated, merely to gratify the taste.

10. To eat a hearty supper for the pleasure experienced during the brief time it is passing down the throat, at the expense of a whole night of disturbed sleep, and a weary waking in the morning.

11. To remove a portion of the clothing immediately after exercise, when the most stupid drayman knows that if he does not put a cover on his horse the moment he ceases work in winter, he will lose him in a few days by pneumonia.

12. To contend that because the dirtiest children in the street, or on the highway, are hearty and healthy, that, therefore, it is healthy to be dirty; forgetting that continuous daily exposure to the pure out-door air, in joyous, unrestrained activities, is such a powerful agency for health that those who live thus are well, in spite of rags and filth.

13. To presume to repeat, later in life without injury, the indiscretions, exposures and intemperances which in the flush of youth were practiced with impunity.

14. To believe that warm air is necessarily impure, or that pure, cool air is necessarily more healthy than the confined air of a close and crowded vehicle; the latter, at most, can only cause fainting or nausea; while entering a conveyance after walking briskly, lowering a window, thus while still exposed to a draught, will give a cold infalli-

bly, or an attack of pleurisy or pneumonia, which will cause weeks and months of suffering, if not actual death.

FOURTEEN WAYS BY WHICH PEOPLE GET SICK.

1. Eating too fast, and swallowing imperfectly-masticated food.
2. Taking too much fluid during meals.
3. Drinking poisonous whisky and other intoxicating liquors.
4. Keeping late hours at night, and sleeping too late in the morning.
5. Wearing clothes so tight as to impede the circulation.
6. Wearing thin shoes.
7. Neglecting to take sufficient exercise to keep the hands and feet warm.
8. Neglecting to wash the body sufficiently to keep the pores of the skin open.
9. Exchanging the warm clothing worn in a room during the day, for light costume and exposure incident to evening parties.
10. Starving the stomach to gratify a vain and foolish passion for dress.
11. Keeping up a constant excitement, fretting the mind with borrowed troubles.
12. Employing cheap doctors and swallowing quack nostrums for every imaginary ill.
13. Taking the meals at irregular intervals.
14. Reading the trashy and exciting literature of the day, and going crazy on politics.

TWELVE WAYS OF COMMITTING SUICIDE.

1. Wearing thin shoes of damp nights and in cold rainy weather. Wearing insufficient clothing, and especially upon the limbs and extremities.
2. Leading a life of enfeebling, stupid laziness, and keeping the mind in an unnatural state of excitement by reading romances. Going to theatres, parties and balls in all sorts of weather, in the thinnest dress. Dancing till in a complete perspiration, and then going home without sufficient over-garments through the cold, damp air.
3. Sleeping on feather beds in seven by nine bedrooms, without ventilation at the top of the windows, and especially with two or more persons in the small, unventilated bedroom.
4. Surfeiting on hot and very stimulating dinners. Eating in a

hurry, without half masticating your food, and eating heartily before going to bed every night, when the mind and body are exhausted by the toils of the day and excitement of the evening.

5. Beginning in childhood on tea and coffee, and going from one step to another, through chewing and smoking tobacco, and drinking intoxicating liquors, by personal abuse and physical and mental excesses of every description.

6. Marrying in haste and getting an uncongenial companion, and living the remainder of your life in mental dissatisfaction. Cultivating jealousies and domestic broils, and being always in a mental ferment.

7. Keeping children quiet by giving paregoric and cordials, by teaching them to suck candy, and by supplying them with raisins, nuts and rich cake. When they are sick, by giving them mercury, tartar emetic and arsenic, under the mistaken notion that they are medicines and not irritant poisons.

8. Allowing the love of gain to absorb our minds, so as to leave no time to attend to our health. Following an unhealthy occupation because money can be made at it.

9. Tempting the appetite with bitters and niceties, when the stomach says "No," and by forcing food when nature does not demand and even rejects it. Gormandizing between meals.

10. Contriving to keep in a continual worry about something or nothing. Giving way to fits of anger.

11. Being irregular in all our habits of sleeping and eating, going to bed at midnight and getting up at noon. Eating too much, too many kinds of food, and that which is too highly seasoned.

12. Neglecting to take proper care of ourselves and not applying early for medical advice when disease first appears. Taking celebrated quack medicines to a degree of making a drug shop of the body.

WHY FARMERS ARE HEALTHIER THAN PROFESSIONAL MEN.

1. They work more and develop all the leading muscles of the body.

2. They take their exercise in the open air, and thus breathe a greater amount of oxygen.

3. Their food and drinks are commonly less adulterated, and far more simple.

4. They do not over-work their brain as much as industrious professional men do.

5. They take their sleep commonly during the hours of darkness, and do not try to turn day into night.
6. They are not, commonly, so ambitious, and do not wear themselves out so rapidly in the fierce contests of rivalry.
7. Their pleasures are more simple and less exhausting.

SIGNS OF HEALTH AND LONG LIFE.

The following are some of the outward signs of sound health, and indications of long life, as pointed out by Prof. Laycock of Edinburgh: The skin should be healthy; the skin products, whether appendages—as hair, nails and teeth—or secretions, should be normal and healthy; the expressions of the eye should be free from peevishness or irritability, for these often mark a tendency to shortness of life; there should be no infiltration of the lower eyelid, or marked vascularity of the upper lid. The complexion may be of any temperament; but should be good of the kind; there should be no signs of unhealthy blood. Perhaps the best single criterion of a sound, enduring constitution is to be found in the character of the hair and teeth. Persons tending to longevity have usually sound, well enameled, well set teeth, continuing free from decay until old age, and their hair is thick, not soon gray, nor falling early. In such persons the general powers are vigorous, and it is only some visceral disease or acute fever which shortens life. If to the signs of good health you can add good conduct, and the fact of longevity being hereditary in the family, the individual has a good chance of long life.

An early or excessive fat deposit is not unfrequently indicative of premature old age. Scrofulous children and youth are apt to be very fat before tuberculosis comes on; very fat men or women very rarely reach sixty, and all the fat infantile monsters die early.

SICKNESS.

AMONG the manifold misfortunes that may befall humanity, the loss of health is one of the severest. All the joys that life can give can not outweigh the sufferings of the sick. Give the sick man everything, and leave him his sufferings, and he will feel that half the world is lost to him. Lay him on a soft, silken couch, he will nevertheless groan sleepless under the presence of his sufferings; while the

miserable beggar, blessed with health, sleeps sweetly on the hard ground. Spread his tables with dainty meats and choice drinks, and he will thrust back the hand that proffers them, and envy the poor man who thoroughly enjoys his dry crust. Surround him with the pomp of kings, let his chair be a throne, and his crutch a world-swaying sceptre; he will look with contemptuous eye on marble, on gold, and on purple, and would deem himself happy could he enjoy, even were it under a thatched roof, the health of the meanest of his servants.

Disease is not necessarily connected with life. Originally man was made perfect in all his parts. Thousands go through life without ever having experienced any derangement of their principal organization. To them even approaching death brings no illness. They die because the last drop of life's oil in their lamp has been consumed; they sleep away in sweet weariness, like the reaper in autumn when his daily task is completed.

If we have not inherited the germs of disease from our parents, it is generally to our own imprudence or thoughtlessness that may be attributed the loss of life's best gift,—the health of our bodies,—the partial destruction of the instrument through which our souls are to work and do useful service.

In every case, observe the nature of thy body, and regulate thy life accordingly. Observe its laws in thy nourishment, thy drink, thy pleasures, and thy mode of working in thy vocation. Never forget that one single hour of intemperance may be the parent of long years of suffering. Never forget that one moment of guilty self-forgetfulness in the midst of joy, suffices to poison thy cup of bliss.

Man's body is not his inalienable possession, it is a loan from the hand of God, which we shall one day have to give up, an instrument of the spirit, without which the latter can not fulfil its appointed work on earth. If man deserve punishment for sin, then assuredly he deserves it when he sins against his own body; for he thereby robs himself of the joy of life, and the capacity for a long time, and perhaps forever of doing as much good as he might otherwise do.

Not only do we by carelessness of our health, render ourselves incapable of fulfilling adequately our duties to God, our country, and our fellow citizens, to strangers and to friends, but we may even, though subsequently restored to health, in reality have hastened the approach of the hour of death. The man wanting in moderation—whether it be, that with careless presumption he expose himself unnecessarily to danger, or that by exasperated care he render himself

over-delicate—may be said to be a self-murderer, though against his will and desire.

Again the germs of disease are often transmitted from parents to children: the maladies of one generation thus become the ailments and sufferings of a distant posterity. Therefore guard reverently the health of your bodies, that your children may not one day upbraid you with their diseases; that the follies of one brief moment of your existence may not become a source of misery to your children's children! It is this that the Scriptures allude to when they say, the sins of parents are punished unto the third and fourth generation.

Often place yourself in spirit by the bedside of the sick. It may be to you a school of wisdom. When the sunken eye and deathly pallor of the poor sufferer make you tremble, the resolve will be strengthened in you to avoid everything that may injure your own health.

But watch not only over thyself; watch also over the health of thy companions. Tempt not others to immoderate pleasures; lead them not into dissipation that may breed disease. What satisfaction will it be to thee, when thou hast robbed them of the sweet bloom of health, when thou hast become, as it were, the destroyer of their best joy in life?

Nevertheless, this is a point in regard to which even good people, without malice and without premeditation, but in the tumult of pleasure, so frequently err. Their example and their encouragement excite weaker persons to indulge in undue gratifications. In the very endeavor to give their friend a proof of affection, they frequently become his poisoner, his destroyer. Neither the malice nor the cruelty of man is so dangerous as his thoughtless levity.

Honor, O Christian, in thyself as in others the sanctity of health!

CLOTHING.

THE most healthful clothing for our climate, the year round, is that made of wool. If worn next the skin by all classes, in Summer as well as Winter, an incalculable amount of coughs, colds, diarrheas, dysenteries and fevers would be prevented, as also many sudden and premature deaths from croup, diphtheria and lung diseases. Winter maladies would be prevented by the ability of a woollen garment to keep the natural heat about the body more perfectly, instead of con-

veying it away as fast as generated, as linen and flaxen garments; as also cotton and silk, although these are less cooling than Irish linen, as any one can prove by noticing the different degrees of coldness on the application of a surface of six inches square of flannel, cotton and linen to the skin, the moment the clothing is removed. The reason is, that wool is a bad conductor of heat, and linen is a good conductor.

It is more healthful to wear linen next the skin in summer, because it absorbs the moisture of perspiration so rapidly, as to keep the skin measurably dry all the time. It is curious to notice that the water is conveyed by a woollen garment from the surface of the body to the outside of the garment, where the microscope shows it condensed in millions of pearly drops; while it is in the experience of the observant, that if a linen shirt becomes damp by perspiration, it remains cold and clammy for a long time afterwards; and unless removed will certainly cause some bodily ailment.

In the night-sweats of consumption, or any debilitated condition of the system, a woollen-flannel night-dress is immeasurably more comfortable than cotton or linen, because it prevents that sepulchral dampness and chillness of feeling, which are otherwise inevitable.

The British government make it imperative that every sailor in the navy shall wear woollen flannel shirts in the hottest climates. The shrinkage of woollen garments in washing, whereby they become hard, impervious and board-like, has prevented their more general use; but there are three ways of preventing this, to a greater or less extent; either let about one-fourth of the material be made of cotton; have it dyed red or some other color before it is woven; or if it is greatly preferred that it shall be white, exercise proper care in the process of washing.

Woollen flannel is the best protection against taking cold in all seasons if kept pliable by proper washing.

CHANGING CLOTHING.

It has come within the observation of many a reader that serious and severe illness has been induced, and even fatal sickness caused, by a change of clothing. Injury never comes, perhaps, by putting on more or warmer clothing, but by diminishing the amount inconsiderately. The first great general rule, and always the safest, is to make the change when you first dress in the morning; if you wait until you are uncomfortably warm during the day, it is most likely to be in the early part of the afternoon; in making the change then there

are two or three causes of disease in operation; the fact of undressing endangers a check of perspiration; the garments about to be put on may not be perfectly dry, there may be no opportunity, even if they are dry, to warm them up to the heat of the body; and further, just about the time you have changed, the cool and damps of the afternoon and evening begin to come on, increasing until dark, while having been thrown off your guard by the warmth of the morning, you may not feel the necessity of a fire, and by tea time you are surprised with a disagreeable chillness running over you; then the cold has been taken, to settle in the eyes, causing weakness and watering; or in the head, giving a running at the nose, soiling a handkerchief in an hour; or in the throat, creating a raw or burning sensation at the little hollow at the bottom of the neck and top of the breast-bone; or on the covering of the lungs, to give the painful pleurisy; or in the lungs themselves, in the shape of a troublesome bronchitis, or a dangerous pneumonia; or in the bowels, causing weakening diarrhea; or on the covering of the bowels, inducing peritoneal inflammation, to end probably in death in a few days.

It is very unsafe in this latitude, to lessen the amount of clothing sooner than the first of May, and then not in quality, but in less thickness of the same material; from a thick, knitted flannel shirt to one of common woolen flannel; then, about the first of June, to a gauze flannel: if this is oppressive to some, then employ Canton flannel.

THE WARMEST AND BEST CLOTHING.

Most persons suppose that fabrics made of coarse wool are the warmest and most durable. This is a mistaken idea. Owing to the lower prices of coarse wool, fabrics of this material are usually made heavier than those of fine wool, hence their greater thickness deceive persons respecting their qualities for warmth and wear. There is no heat in the wool itself; its property of what is called "warmth" is due to its non-conducting qualities. If we grasp a bar of iron on a frosty morning, it produces a disagreeable cold sensation because it is a good conductor of heat, and the warmth of the hand is rapidly carried off by the metal. On the other hand, a piece of woolen cloth, especially if it has a long nap on it, does not feel cold because it is a good non-conductor, and prevents the heat from passing rapidly from the hand. Now the warmest fabric for clothing is that which is the best non-conductor; and Count Rumford made a great many experiments with different materials in order to find out the best. Accord-

ing to his observations, the down of the eider-duck which the Esquimaux use in their clothing, is unrivalled in this respect; and the fine the fabric of woolen cloth used, the more imperfectly did it conduct the heat from the human body. As fine woolen cloth is superior to that of coarse wool as a non-conductor, it is therefore the best for clothing in keeping the body warm during cold weather. We are also positive that cloth made of fine wool equal in thickness to that manufactured from the coarser material will wear much longer. The finest woolen cloth, although dearest at first, is cheapest in the end, because it is more durable and warmer; and, according to Liebig, so much heat saved is so much meat gained. It must not be overlooked, however, that there may be a very great difference between what is called "firm cloth" and cloth made of fine wool. Fine wool feels pleasant and soft to the touch; and it has a rich velvety appearance.

DRESS OF THE ARMS AND LEGS—CHILDRENS' CLOTHING.

One of the gravest mistakes in our dress is the very thin covering of our arms and legs. No physiologist can doubt that the extremities require as much covering as the body. A fruitful source of disease: of congestion in the head, chest, and abdomen, is found in the nakedness of the arms and legs, which prevents a fair distribution of the blood.

A young lady has just asked me what she can do for her very thin arms. She says she is ashamed of them. I felt of them through the thin lace covering, and found them freezing cold. I asked her what she supposed would make muscles grow? Exercise, she replied. Certainly, but exercise makes them grow only by giving them more blood. Six months of vigorous exercise would do less to give those naked, cold arms circulation, than would a single month were they warmly clad.

The value of exercise depends upon the temperature of the muscles. A cold gymnasium is unprofitable. Its temperature should be between sixty and seventy, or the limbs should be warmly clothed. I know that our servant girls and blacksmiths, by constant and vigorous exercise acquire large, fine arms, in spite of their nakedness. And if young ladies will labor as hard from morning till night as do these useful classes, they may have as fine arms, but even then it is doubtful if they would get rid of their congestions in the head, lungs, and stomach without more dress upon the arms and legs.

Perfect health depends upon perfect circulation. Every living thing

that has the latter, has the former. Put your hand under your dress upon your body. Now put your hand upon your arm. If you find the body is warmer than the arm, you have lost the equilibrium of circulation. The head has too much blood, producing headache or sense of fullness; or the chest has too much blood, producing cough, rapid breathing, pain in the side, or palpitation of the heart; or the stomach has too much blood, producing indigestion; or the liver has too much blood, producing some disturbance; or the bowels have too much blood, producing constipation or diarrhea. Any or all of these difficulties are temporarily relieved by immersion of the feet or hands in hot water, and they are permanently relieved by such dress and exercise of the extremities as will make the derivation permanent.

Again I say, the extremities require as much clothing as the body. Women should dress their arms and legs with one or two thicknesses of knit woolen garments which fit them. The absurdity of loose flowing sleeves and wide spread skirts, I will not discuss.

Do you ask me why the arms and legs may not become accustomed to exposure like the face? I answer God has provided the face with an immense circulation, because it must be exposed.

A distinguished physician of Paris declared, just before his death, "I believe that during the twenty-six years I have practiced my profession in this city, twenty thousand children have been borne to the cemeteries a sacrifice to the absurd custom of naked arms." When in Harvard, many years ago, I heard the distinguished Dr. J. C. Warren say, "Boston sacrifices five hundred babies every year by not clothing their arms." Those little arms should have thick, knit, woolen, warm sleeves, extending from the shoulder to the hand.

Put the bulb of a thermometer in a baby's mouth, the mercury rises to ninety degrees. Now carry the same to its little hand; if the arm be bare, and the evening cool, the mercury will sink to fifty degrees. Of course all the blood that flows through these arms must fall from ten to forty degrees below the temperature of the heart. Need I say, when these currents of blood flow back into the chest, the child's vitality must be more or less compromised? And need I add that we ought not to be surprised at its frequent recurring affections of the tongue, throat, or stomach? I have seen more than one child with habitual cough and hoarseness, choking with mucus, entirely and permanently relieved by simply keeping the hands and arms warm. Every observing and progressive physician has daily opportunities of witnessing the same cure."

The reason why children die, says Hall's Journal of Health, is be-

cause they are not taken care of. From the day³ of birth they are stuffed with food, choked with physic, sloshed with water, suffocated in hot rooms, steamed in bed-clothes. So much for in-door. When permitted to breathe a breath of pure air once a week in summer, and once or twice during the colder months, only the nose is permitted to peer into daylight. A little later, they are sent out with no clothes on at all, the parts of the body which most need protection. Bare legs, bare arms, bare necks, girted middles, with an inverted umbrella to collect the air, and chill the other parts of the body. A stout, strong man goes out in a cold day with gloves and overcoat, woolen stockings and thick double-soled boots, with cork between and rubbers over. The same day, a child of three years old, an infant in flesh and blood and bone and constitution, goes out with shoes as thin as paper, cotton socks, legs uncovered to the knees, neck bare; an exposure which would disable the nurse, kill the mother outright, and make the father an invalid for weeks. And why? To harden them to a mode of dress which they are never expected to practice. To accustom them to exposure, which a dozen years later would be considered downright foolery. To rear children thus for the slaughter pen, and then lay it to the Lord, is too bad. We don't think the Almighty had any hand in it. And to draw comfort from the presumption that he has any agency in the death of the child, is a presumption and profanation.

CLEANLINESS.

THERE is a homely, but very forcible expression (most homely expressions are forcible,) that "cleanliness is next to godliness;" meaning thereby that habits of cleanliness tend not only to health of body, but to that state of moral feeling, which becomes man as the chief creature of the Almighty. One of the first acts of mental degradation is neglect of the person; filth and rags are always associated with misery, and often with vice and crime; and this remark applies to nations as well as individuals.

Mohammed was wont to say that religion had its very foundation in cleanliness, and he pronounced it "one-half of the faith, and the key of prayer." How often he expected his followers to wash themselves, may be inferred from his exhortation with respect to prayer. They were to pray "before the rising of the sun, and before the set-

ting thereof; in the hours of the night, and in the extremities of the day; when the evening overtaketh you, and when you rise in the morning; at sunset, and when you rest at noon." But we have a still more pointed injunction in these words: "O, true believers! when you *prepare* yourselves to pray, wash your faces and your hands, and your heads and your feet."

"Now, setting aside "the great unwashed" class in this and other Christian countries, it might be well for their inhabitants to pattern a little after the Mahomedans, in this respect. It certainly would do them no spiritual harm. To the contrary, it would require but a slight knowledge of physiology to convince any real Christian that it would benefit him spiritually as well as bodily.

It is noticeable that in poor neighborhoods which have been attacked by cholera, fever, and similar diseases, the Jews living there have in an extraordinary manner escaped visitation. The apparent causes of this sanitary fact are worthy of attention: 1st. Being most particular in the food they eat. 2d. Intemperance from drink being rare amongst them. 3d. Their religion directs them to use great personal cleanliness—ablutions being frequently made before visiting their synagogues and other occasions. All the above acts are important to health, and the good effect of attention to them is evident.

Count Rumford, the celebrated philosopher, whose writings have been of greater value to mankind than the abstruse speculations of a host of metaphysicians, thus describes the advantage of cleanliness: "With what care and attention do the feathered race wash themselves and put their plumage in order; and how perfectly neat, clean and elegant do they appear. Among the beasts of the field, we find those which are the most cleanly, are generally the most gay and cheerful; or are distinguished by a certain air of tranquility and contentment; and singing birds are always remarkable for the neatness of their plumage. So great is the effect of cleanliness upon man, that it extends even to his moral character. Virtue never dwelt long with filth; nor do I believe there ever was a person scrupulously attentive to cleanliness, who was a consummate villain."

Liebig says: "Give me the amount of soap a people use, and I will make an accurate estimate of their moral condition."

As occasional filth is the worst evil of poverty and labor, so should constant cleanliness be the greatest luxury of wealth and ease.

Cold water is used and prescribed much more than formerly, though many would think a physician not worth sending for who should prescribe so simple a remedy. Abernathy's advice to one of his wealthy

patients was: "Let your servants bring to you three or four pailsful of water and put you into it, and from head to foot rub yourself with it, and you'll recover." "This advice of yours seems very much like telling me to wash myself," said the patient. "Well," said Abernathy, "it is open to that objection."

BATHING AND SWIMMING.

It is a fact, officially recorded, that during the terrible visitations of cholera, in France, out of sixteen thousand two hundred and twenty-eight subscribers to the public baths of Paris, Bordeaux, and Marseilles, only two deaths among them were ascribed to cholera. We doubt whether there exists a more effectual preventive to disease of every kind, and a greater promotor of good health at all times, than the practice of bathing.

It is said that a person who may be in fear of having received infection of any kind, as for instance, having visited a fever patient, should speedily plunge into a warm bath, suffer perspiration to ensue, and then rub dry, dress securely to guard against taking cold, and finish off with a cup of strong tea by the fire. If the system has imbibed any infectious matter, it will certainly be removed by this process, if it be resorted to before the infection has time to spread over the system. And even if some time has elapsed, the drenching perspiration that may be induced in a hot bath will be pretty sure to remove it. But we do not recommend habitual water drinking or warm bathing, for both are weakening if injudiciously practiced.

Bathing is good for robust people; but thin, lean, cold people should be cautious and chary in the use of the cold bath. It is weakening, as every one knows from the sensations experienced. Boys often injure themselves severely by frequent bathing. It is only good when felt to be bracing and strengthening. It sometimes occasions a deafness, when the water gets into the ear, and cannot be easily expelled. Physicians are very indiscriminate in their bath prescriptions, and very unwise. We have known many cases in which their advice has proved most injurious. Let every man follow his own judgment, and not blindly follow a rule. Remember that this is the era of private judgment, and every man is called upon to exercise it. Some are strengthened by bathing, and washing or rubbing with a wet towel is sometimes conducive to health, when bathing is not. Salt-water bathing is good for some people, and bad for others. Every man must experiment in regard to it for himself.

The medical authorities of the French Army especially recommend that men inclined to disease of the chest should be continually made to swim. M. le Docteur Dulong, the head of the medical department, attributes the following effects on the organs of respiration to swimming :

“A swimmer wishing to proceed from one place to another, is obliged to deploy his arms and legs to cut through the liquid, and beat the water with them to sustain himself. It is to the chest, as being the central point of sustentation, that every movement of the limbs responds. This irradiation of the movements of the chest, far from being hurtful to it, is beneficial ; for, according to a sacred physiology, the more an organ is put into action the more vigor and aptitude it will gain to perform its functions. Applying this principle to natation, it will easily be conceived how the membranes of the chest of a swimmer acquire development—the pulmonary tissues firmness, tone and energy.”

DISINFECTANTS.

THERE are three classes of disinfectants : the first removes the offensive odors by absorbing them, the second by destroying them, and the third prevent their formation. The most powerful of the first class is charcoal, of the second chlorine, and of the third sulphurous acid. This prevents, or at least retards, the decay of vegetable matter.

So far as we now recollect there is not a single substance which on being filtered through charcoal will not be deprived of its flavor and odor. The substance coming next to charcoal in its power of absorbing various odors is water. The power of water to act as a disinfectant can be made available in many circumstances : it is especially useful in chambers of the sick, as a dash of water in any vessel standing in the room will render it inoffensive. Mr. Turnbull, of Glasgow, covered three hundred and fifty dead horses with charcoal, and no unpleasant odor was emitted from them. He also placed the body of a dog in a wooden box, for more than six months, in which he put a layer of charcoal, and covered it over with another layer, of a few inches in depth. The box was left uncovered in his laboratory, from which no offensive smell was ever discovered. The property of charcoal to restore sweetness to tainted meat was shown by Lowitz, when at St. Petersburg, in 1786. Charcoal is the best known substance

for absorbing foul gases and preventing fetid smells arising from sewers.

During warm weather decaying organic substances near dwellings emit offensive and unhealthy gases. In situations where the putrid substances cannot be removed, disinfectants should be employed for neutralizing their effects. The common gas which is emitted from sinks and sewers is sulphuretted hydrogen. It has a peculiar nauseous fetid odor, resembling that of rotten eggs, and produces nausea, headache, faintness, and loss of appetite, when inhaled for a moderate length of time. The chloride of lime is a most convenient substance to use as a disinfectant. It may be sprinkled in the solid state among the decaying substances, or it may be placed where the chlorine will evaporate into the atmosphere, and combine with the fetid gas, or it may be mixed with water and sprinkled over floors or poured into sinks. Chloride of zinc has also been used extensively. One pint of the liquor or chloride of zinc, in one pailful of water. This is perhaps the most effective of anything that can be used, and when thrown upon decayed vegetable matter of any description, will effectually destroy all offensive odors. Fresh slaked lime is also used as a disinfectant, but for families to use in sinks copperas is about the best substance that can be employed. Three or four pounds of copperas, (sulphate of iron) dissolved in a pailful of water will, in many cases be sufficient. Any of these will be found efficacious in removing offensive smells from damp, mouldy cellars, yards, pools of stagnant water, decaying vegetable matter, &c., while their cost is but a trifle.

A very cheap disinfecting powder is now in use in France, and French physicians say it is a perfect deodorizer of sinks and other foul-smelling places, and also of all the wounds, or sickening odors of the hospital. It is composed as follows: To one hundred parts of powdered gypsum (plaster Paris) add one to three parts of coal tar (from the gas works,) and thoroughly mix the tar and plaster in a mortar or hand mill, or by any other convenient means, and make ready for use in powder or solution. Two pounds of the powder are sufficient to dissolve in twenty gallons of water, and from one to two pints each day of this water, it is stated, will completely deodorize all the fecal matters of a small family. A mere morsel of the powder will render a pint of fetid water fit for use. A sprinkling of the powder or solution deodorizes a stable or a pile of decaying vegetable matter. Such are the statements published of this cheap disinfectant, The truth of its value is certainly worth inquiring after, by practical experiment.

It is also said that as a disinfecting agent, to scatter around premises affected with any unpleasant odor, nothing is better than a mixture of four parts dry ground plaster of Paris to one part fine charcoal, by weight. All sorts of glass vessels and other utensils may be effectually purified from offensive smells by rinsing them with charcoal powder after the grosser impurities have been scoured off with sand and soap.

The *London Medical Gazette* says that coffee is the most powerful means not only of rendering animal and vegetable effluvia innoxious, but of actually destroying them. The best mode of using the coffee as a disinfectant, is to dry the raw bean, pound it in a mortar, and then roast the powder on a moderately heated iron plate, until it assumes a dark brown tint, and it is fit for use. Then sprinkle it in sink or cesspools, or lay it on a plate in the rooms which you wish to have purified. Coffee acid or coffee oil acts more readily in minute quantities. Coffee dried and pulverized then sprinkled on an iron shovel or plate not quite red hot will fumigate a room of all animal effluvia in half a minute.

A saucer full of chloride of lime, moistened with a few drops of vinegar and water, will purify the atmosphere of a sick room in a few moments. The effluvia of a sick room, if not of a contagious character, may be removed by placing on a shallow dish on the floor two or three sliced onions and changing them every three or four hours.

THE BODY AND THE MIND.

By the exercise of a very little reflection we shall discover that the mind and body are both dependent on each other. The mind, more especially, upon the physical structure; for without stimulant from bodily vigor, the brain refuses to work and thought is paralyzed. These are trueisms, and are not put forth as embodying any new and startling doctrine. They are so true that all thinking men know the force of the remarks, even if they fail to take any steps to practice what is suggested by them; for when a man is told that his mind is weak, it implies bodily waste, and he must of necessity recruit the one to improve the other. This article is no plea for gymnasia, or other similar institutions; in fact we look upon these as the last resort for restoring lost animal strength, and invigorating the wasted tissues and muscles of the body. Rather do we seek in these lines to

impress upon every person engaged in sedentary pursuits, the absolute need that exists for sensible and diverting bodily activity.

How does the case stand; how do men in general spend the few hours they can spare from business? Let the reader look around among his acquaintance, or ask himself, and he can see clearly that but few persons give the attention they ought to this subject. One individual for instance stands all day in his store, bends over his desk, and wearies out his body and mind by close attention to business. Possibly, at five o'clock he goes home, because he can't stand the strain any longer: what does he do then? He plays five minutes with his baby, or else dozes in the corner over a newspaper, all doubled up like a jack-knife. Still other men of business snatch a hasty minute to dine, and come home at night, only to pore over ledgers and business accounts without end. These plans may be very excellent ones to get riches by, but there are demands of the body to be attended to, which neglected, all the wealth in the world cannot compensate for. The obvious remedy is to give each function and organ of the body its proper degree of care. The millionaire will not consent that his horses shall stand idle in the stable, for he knows that by so doing they lose in beauty and spirit; yet he denies to his own body what he recognizes as indispensable for the animal, and suffers his energies to waste for want of use. The mechanic who has an overabundance of muscular exercise, requires intellectual food, that his brains may develop and his ideas be enlarged: while the reverse is true of literary men.

In the beginning of this article we mentioned gymnasia, and their influence; we think that one great feature in developing our frames is too often overlooked, and that is the degree of interest or sympathy an individual has, in his efforts to become robust. Most persons will concede that if a man forces himself to walk about in a pen, open to air and sunlight, for a certain period, he will not necessarily present a picture of health: and that mere tramping over a stated number of miles may not always bring him in sight of the fountains of youth. But let nature inspire the heart of man with all her beautiful sights and sounds; let him feel the sweet influences of the landscape filling his heart with joy and gratitude; and then a walk of half a mile is better for his body than five miles under other circumstances. It is not so much what we do for the restoration of lost physical energy, as *how* we do it. Active exercise is in fact only another name for recreation, and that this is imperatively necessary to a healthy body all will admit. Outraged nature inflicts sore present punishment upon men

for the neglect of this law, as future unhappiness, in a line of degenerated and figuratively emasculated descendants.

EXERCISE.

THE wide-spread fallacy that if a person be able to live without work it is his right and privilege to lead an inactive life, is an error as fatal in its effects on health as it is fallacious in principle.

Providence has so ordered it, that a state of rest and inaction, however it may flatter our indolence, should be productive of many inconveniences; that it should generate such disorders, as may force us to have recourse to some labor, as a thing absolutely requisite to make us pass our lives with tolerable satisfaction; for the nature of rest is to suffer all the parts of our bodies to fall into a relaxation, that not only disables the members from performing their functions, but takes away the vigorous tone of fibre which is requisite for carrying on the natural and necessary secretions.

At the same time, that, in this languid and inactive state, the nerves are more liable to the most horrid convulsions, than when they are sufficiently braced and strengthened. Melancholy, dejection, and despair, and often self-murder, is the consequence of the gloomy view we take of things in this relaxed state of the body.

The best remedy for all these evils is exercise or labor; and labor is a surmounting of difficulties, an exertion of the contracting power of the muscles; and as such, resembles pain, which consists in tension or contraction, in everything but degree. Labor is not only requisite to preserve the coarser organs in a state fit for their functions; but it is equally necessary to the finer and more delicate organs, on which, and by which, the imagination, and perhaps the other mental powers act.

Throughout all nature, want of motion indicates weakness, corruption, inanimation, and death. Trenck, in his damp prison, leaped about like a lion, in his fetters of seventy pounds weight, in order to preserve his health; and an illustrious physician observes: "I know not which is most necessary for the support of the human frame—food or motion. Were the exercise of the body attended to in a corresponding degree to that of mind, men of learning would be more healthy and vigorous—of more general talents—of more ample practical knowledge—more happy in their domestic lives—more enterprizing."

sing and attached to their duties as men. In fine, with propriety it may be said, that the highest refinement of mind, without improvement of the body, can never present anything more than half a human being."

Exercise consists of the regular and successive activity of every organ and function.

"To build up a good constitution," says Dr. Hall, "we must take good care of what we have, and add to it, by pretty hard work and moderate thought, until the age of forty-five; then there should be less work and more thought. Bodily labor consolidates the constitution up to forty-five; then, mental labor preserves it, keeps it good to the verge of fourscore years, if the bodily activities are very moderate. As witness Humboldt, who was a great traveler in early life; but from fifty to ninety a great student. Many similar instances will occur to intelligent minds. The general idea is of great practical importance. Work hard until forty-five; think hard after, and all the while be 'temperate in all things.' This is the way to live long."

Judge Bates, of Missouri, who came very near being a candidate for the Presidency, recently made the following statement: "For nearly forty years I have made it a rule to work from one to three hours each day in the open air, and I find myself in a good state of health, at an advanced age, which I attribute in a great measure to this exercise."

Dr. Merwin, in his book on mental diseases, says: "Lately, I conversed with a veteran in literature and years, whose powers of mind no one questions, however they may differ from him in speculative points. This gentleman has preserved the health of his body and the soundness of his mind, through a long course of multifarious and often depressing circumstances, by a steady perseverance in the habit of walking every day. He has survived, for a long period, almost all the literary characters who were his cotemporaries at the time when his own writings excited much public attention; and almost all of them have dropped into the grave, one after another, while he has continued on in an uninterrupted course. But they were men of far less regular habits, and I am obliged to add, of much less equanimity of mind. Yet the preservation of his equanimity has, I verily believe, been insured by the unvaried practice to which I have referred, and which in others would prove equally available, if steadily pursued."

Three principal points in the manner of taking exercise are necessary to be attended to: 1. The kind of exercise. 2. The proper time

for exercise. 3. The duration of it. With respect to the kinds of exercise, the various species of it may be divided into active and passive. Among the first, which admit of being considerably diversified, may be enumerated walking, running, leaping, swimming, riding, fencing, the military exercise, different sorts of athletic games, &c. Among the latter, or passive kinds of exercises, may be comprised, riding in a carriage, sailing, friction, swinging, &c.

The first, or active exercises, are more beneficial to the middle-aged, to the robust in general, and particularly to the corpulent and the plethoric.

The second, or passive kinds of exercise, on the contrary, are better calculated for children; old, dry, and emaciated persons of a delicate and debilitated constitution; and particularly to the asthmatic and consumptive.

The time at which exercise is most proper depends on such a variety of concurrent circumstances, that it does not admit of being regulated by any general rules, and must, therefore, be collected from the observations made on the effects of air, food, drink, &c.

With respect to the duration of exercise, there are other particulars, relative to a greater or less degree of fatigue attending the different species and utility of it, in certain states of the mind and body, which must determine this consideration as well as the preceding.

That exercise is to be preferred, which, with a view to brace and strengthen the body, we are most accustomed to, as any unusual one may be attended with a contrary effect. Exercise should be begun and finished gradually, never abruptly. Exercise in the open air has many advantages over that used within doors. To continue exercise until a profuse perspiration, or a great degree of weariness takes place, is far from being wholesome. In the forenoon, when the stomach is not too much distended, muscular motion is both agreeable and healthful; it strengthens digestion, and heats the body less than with a full stomach, and a good appetite after it, is a proof that it has not been carried to excess. But at the same time, it should be understood, that it is not advisable to take violent exercise immediately before a meal, as digestion might thereby be retarded. Neither should we sit down to a substantial dinner or supper immediately on returning from a fatiguing walk, at a time when the blood is heated, and the body in a state of perspiration from previous exertion, as the worst consequences may arise, especially where cooling dishes, salad, or a glass of cold drink, is begun with. Exercise is always hurtful after meals, from its impeding digestion, by propelling those fluids too much toward the

surface of the body which are designed for the solution of the food in the stomach.

As a caution against violent physical exercise I will quote the chief medical lecturer of London, whose practice lies very much amongst the upper classes. He says that almost all aristocratic young men who have been to Oxford or Cambridge, and especially those who have meddled much in pulling at boat races, have returned from their University, affected with diseased blood vessels, and very many with diseased or dilated heart, brought on by the undue excitement of the circulation, induced by pulling at these boating-matches.

For persons predisposed to consumption, and whose lungs are already weak, we should recommend exercises less violent than those of the gymnasium. Pure air by night and day, well-cooked, nutritious food, cheerful company and gentle exercise, seem to be the most hopeful remedies. No drugs. Drugs are the bane of weakly constitutions. If you cannot save your life without them, you cannot prolong it with them. Natural exercises are incomparably superior to artificial, for the purposes of physical education, because of the greater degree of spirit and vigor with which the student engages in them. It appears that in nearly all the educational institutions in England, the gymnasium has been deserted for the play-ground.

Every lady who can possibly do it, ought to walk in the open air from one to two hours every day. If suitable clothing were worn, and especially if the feet were properly protected, a daily walk, even in winter, would be more conducive to health and loveliness than all the panaceas or prescriptions ever concocted. It would give elasticity to the step, bloom to the cheek, brilliancy to the eye, gay spirits, brightness of intellect, sound slumbers. Vitality would be strong and high; the deficiency of which, in most cases, is the beginning of consumption. The lungs, too, would have needful play, for no one can go out on a bracing winter morning without inflating the lungs to the fullest, and the air at such times is always the purest.

Walking, for young and active people, is by far the best exercise; riding is good for the elderly, the middle aged, and invalids. The abuse of these exercises consists in taking them when the system is exhausted more or less by previous fasting or by mental labor. Some persons injudiciously attempt a long walk before breakfast under the belief that it is conducive to health. Others will get up early to work three hours at some abstruse mental toil. The effect in both instances is the same; it subtracts from the powers of exertion in the after part of the day. A short saunter or some light reading before this

meal, is the best indulgence of the kind ; otherwise the waste occasioned by labor must be supplied by nourishment, and the breakfast will necessarily become a heavy meal, and the whole morning's comfort sacrificed by a weight at the chest from imperfect digestion of food. These observations apply especially to elderly persons, who are prone to flatter themselves into the persuasion that they can use their mental or bodily powers in age as in youth.

The invariable prescription of one of the most celebrated English physicians, to an invalid, was, "live in the saddle." "My physician has always been a *horse*," was the answer of Rowland Hill, when asked by a medical friend what physician and apothecary he employed to be always so well. He rode a great deal, and by exercise preserved vigorous health.

The best stimulant in the world is oxygen. The way to take it is by introducing it into the blood. This can be readily done by taking large quantities of pure air into the lungs. Exercise promotes breathing ; and breathing oxygenates the blood, and stimulates the brain to the highest activity.

The way to keep warm in Winter is the best way to keep cool in Summer—by exercise, sufficient to keep up a free circulation and a liberal perspiration. It is warmer to sit in the shade, drinking iced-juleps and fanning one's self, than it is to work in the sunshine, and refresh the inner man by drinking tepid water. Any haymaker or harvester can tell you that. If you don't believe it, try the experiment and you will find out.

We advise that no person should go to work or take exercise in the morning on an empty stomach ; but if it is stimulated to action by a cup of coffee, or a crust of bread, or apple, or orange, exercise can be taken not only with impunity, but to high advantage, even in all chill and fever localities.

E A T I N G.

AMERICANS as a people are prone to eat too much and too fast. The advantages of temperate living are well set forth in the following : Solomon tells us that the glutton shall come to poverty ; warns us not to be among riotous eaters of flesh ; and even bids us to put a knife into our throats if we be men given to appetite. Jefferson says that "No man ever repents eating too little." Sir Isaac Newton

very often dined on a penny's worth of bread. Abernethy cured his indigestion and regained his flesh by "going into the country, where he was able to get good milk and eggs, and living upon three ounces of baked custard taken three times a day, with no drink but ginger-water. On this quantity of food he regained his flesh and uniformly got better." Marion said his men waxed strong and valient with no food but sweet potatoes, no drink but water, and no shelter but the sky. Besides brown bread, the Greek boatmen subsist almost solely upon their native fruits—figs, grapes and raisins. They are the most nimble, active, graceful, cheerful, and even the merriest people in the world. Grant Thorburn attributed his cheerful old age to the fact that he "never eat enough," and thousands of his countrymen are wearing out their bodies not so much by the excess of business or the multiplicity of cares, as by the over-work that they crowd upon them in digesting surplus food.

Lord Byron once told a companion that if some demi-god would dictate to us just how much we ought to eat, it would put an end to half the miseries of the race. A Spanish proverb says: A little in the morning is enough; enough at dinner is but a little; but a little at night is too much. If you wish for anything like happiness in the fifth act of life, says a writer, eat and drink about one-half what you could eat and drink. Always rise from the table with an appetite, and you will never sit down without one.

Hall's Journal of Health says that the most common way to a premature grave is down a man's throat. Abernethy used to tell his pupils that all human diseases sprang from two causes—*stuffing* and *fretting*. So long as men are imprudent in their diet and business, doctors and lawyers will ride in carriages. Surfeits are the physician's agents. So are all irregularities.

The habit of eating fast and carelessly is supposed to have paralyzed Napoleon on two of the most critical occasions of his life—the battles of Borodino and Leipsic, which he might have converted into decisive and influential victories by pushing his advantages as he was wont. On each of those occasions he is known to have been suffering from indigestion. On the third day of the battle of Dresden, too, the German novelist, Hoffman, who was present in the town, asserts that the Emperor would have done much more than he did, but for the effects of a shoulder of mutton stuffed with onions.

Henry Ward Beecher says, I have been asked, sometimes, how I could perform so large an amount of work with apparently so little diminution of strength. I attribute my power of endurance to a long formed habit of observing, every day of my life, the simple laws of

health; and none more than those of eating. It ceases any longer to be a matter of self-denial. It is almost like an instinct. If I have a severe tax on my brain in the morning, I cannot eat heartily at breakfast. If the whole day is to be one of exertion, I eat very little until the exertion is over. I know that two forces cannot be concentrated in activity at the same time in the body. I know that when the stomach works, the brain must rest, and when the brain works, the stomach must rest. If I am going to be moving about out of doors a great deal, I can give a full swing to my appetite; which is never exceedingly bad. But if I am engaged actively, and necessarily in mental labor, I cannot eat much. And I have made eating with regularity and with reference to what I have to do a habit so long, that it ceases any longer to be a subject of thought. It almost takes care of itself. I attribute much of my ability to endure good work, to good habits of eating, constant attention to the laws of sleep, physical exercise, and general cheerfulness. There is one thing more to be said in this connection. It is not a matter of epicureanism that a man should be dainty concerning the food he eats. On the contrary, I hold that a civilized man ought to be civilized in his cookery. I suppose one of the infallible signs of the millennium will be a better regulated kitchen; a kitchen that sends out food that will not make Christian men sick.

If too much food is taken the stomach cannot convert it into a perfect blood material, hence no perfect blood is made, and that being mixed with the other blood in the body makes the whole mass of blood impure; hence, after an over-hearty meal a person "feels bad all over." If the over-eating is habitual, there is always some uncomfortable symptom complained of. Such persons are never well, and although they may eat heartily, they do not get strong nor fill up in flesh; it is because the stomach has been over-taxed, and has not the power to extract the nourishment from the food.

When persons do not get strong, although they eat a great deal, they will get stronger by eating one-half less; as a sickly servant in attempting to do a large amount of work, does none of it well, whereas, if the task were a light one, the whole of it would have been thoroughly done. When any uncomfortable feeling is experienced after eating, it is because some article does not "agree with the stomach," that is, cannot be digested by it. This always arises from quality or quantity, generally the latter. In such cases take less and less until no discomfort is produced; if no special change is observed, it is because the quality is unsuited to the condition of the stomach, or the

general system does not require it. An article may not agree with the stomach to-day, but may agree with it very well in a few days, weeks or months afterward, because its distinctive elements may then be needed in the system. Most persons instinctively turn away from roast pork in midsummer—it would make them sick—but in winter time, when the thermometer is near zero, large quantities are eaten with a relish, and no specific discomfort follows. As a general rule, instinct is the best guide, and that which is mostly relished is the thing which should be eaten; but if some discomfort invariably follows, it should be omitted, at least until a change of air, season or occupation. It is a physical and moral wrong to take a single mouthful when really it is not wanted.

The finer food is divided or cut up before swallowed, the sooner, the easier, and more perfect is it digested, for like ice, it is dissolved from without, inwards, and the smaller the pieces, the sooner they are melted.

“Bread and butter,” and milk, are the only two articles of food which have all the elements of nutrition; hence from childhood to extreme old age, we are never tired of them.

Much of our conduct depends, no doubt, upon the character of the food we eat. Perhaps, indeed, the nature of our meals govern the nature of our impulses more than we are inclined to admit, because none of us relish well the abandonment of our idea of free agency. Bonaparte used to attribute the loss of one of his battles to a poor dinner, which, at the time disturbed his digestion; how many of our misjudgments—how many of our deliberate errors—how many of our unkindnesses, our cruelties, our acts of thoughtlessness and recklessness, may be actually owing to a cause of the same character? We eat something that deranges the condition of the system. Through the stomachic nerve that derangement immediately affects the brain. Moroseness succeeds amiability; and under its influence we do that which would shock our sensibility at any other moment. Or, perhaps, a gastric irregularity is the common result of an over-indulgence in wholesome or a moderate indulgence of unsuitable food. The liver is afflicted. In this affliction the brain profoundly sympathises. The temper is soured; the understanding is narrowed; prejudices are strengthened; generous impulses are subdued; selfishness, originated by physical disturbances which perpetually attack the mind's attention, becomes a chronic, mental disorder; the feeling of charity dies out; we live for ourselves alone; we have no care for others. And all this change of nature is the consequence of an injudicious diet.

The two objects of eating as to men and women are to give vigor to the body and to keep it warm; hence all food contains two principles in greater or less proportions, according to its quality—to wit, nutrition and warmth. We need nourishment all the year round, hence we must all the year round eat food which contains nourishment, that is, the flesh-forming principle; but in warm weather the food which contains the most mere fuel, should be to a certain extent curtailed, otherwise we will create too much heat within us, and that is fever, whose victims are counted by millions every year, this excess of heat, this fever, being generated by eating food which contains more warmth, more fuel, called carbon by chemists, than the season of the year requires. To a certain extent nature regulates the demand and supply by diminishing the appetite as the warm weather approaches; but many misinterpret her endeavors, and because they find, as Spring comes on, their appetites are not as vigorous as they were a few weeks earlier, begin to take alarm, think they are going to get sick, unless they can get up the appetite of kind Winter. The general lessons for Spring are, eat only when you are hungry, and to the extent of satisfying an unstimulated appetite; eat less of carbonaceous food, such as meats, fats, oils, syrups, &c., and more of cooling articles, such as green salads, vegetables, berries, fruits and whatever has a natural tartness or acidity, there being little or no carbon or heat in them; but they contain as much nutriment as the system requires.

Be cheerful at your meals. The benefit derived from food taken, depends very much upon the condition of the body while eating. If taken in a moody, cross, or despairing condition of the mind, digestion is much less perfect and slower than when taken with a cheerful disposition. The very rapid and silent eating, too common among Americans, should be avoided, and some topic of interest introduced at meals that all may partake in, and if a hearty laugh is occasionally indulged in, it will be all the better. Mirth is a medicine. It is not uncommon that a person dining in pleasant and social company can eat and digest well that which when eaten alone and the mind absorbed in some deep study or brooding over cares and disappointments, would be long undigested in the stomach, causing disarrangement and pain, and if much indulged in, become the cause of permanent and irreparable injury to the system.

HOW TO KEEP THE CHILDREN HEALTHY.

The *American Agriculturist* says: "The mortality among the chil-

dren in our cities, as well as in the country, is sad to contemplate. Is there any necessity of this? Are all these children sent into the world to be thus early cut down? Are not nine out of ten of these early deaths the result of ignorance? What parents ever lost a child except by accident, without thinking, "If I had treated it differently, it would not have died?" The loss of our own three first-born has led us to think much upon this topic, and three almost always healthy living ones are evidence that our studies on the subject have not been in vain. A few hints on the topic may not be without use.

"Elsewhere, we have given some hints on the sleep of children. Next to securing a plenty of sound sleep, or rather before it, we place the proper preparation of food. The kind of food they eat is not of half so much consequence as the manner of its preparation. Give a child a hard apple and let him swallow it in pieces from the size of a large pea upward. The result will be, that the lumps will be partly worn off by the coats of the stomach, and partly dissolved by the gastric juice; but after a time, the remaining portion of the lumps will be forced down into the intestines and go through the whole length of fifteen to twenty feet, producing at least griping and irritation all the way, if not diarrhea or dysentery. But first scrape or mash the apple to a fine pulp, and it may then be eaten with impunity, and with benefit, if ripe or nearly so.

"Feed a child on boiled potatoes cut up, or on potatoes coarsely mashed and fried in fat, and you will be pretty sure to find more or less of lumps of potatoes remaining undigested. How can it be otherwise than that these lumps must have produced irritation in the intestines? But mash these same potatoes finely before feeding them, and then the fine material will be digested and afford nutriment instead of giving uneasiness and pain, "under the apron."

"The same holds true of most meats. Cut up fine—as fine as shot almost—they will be digested and produce nourishment; while if fed in coarse pieces, they will lie in the stomach, like a meat poultice on the outside, the cause of uneasiness if not of partial inflammation. Feed raisins and nuts to children, and unless very strong and vigorous, the chances are that they will induce immediate sickness or a weakened system, liable to be affected by the first change of heat and cold.

"Chop these same raisins or nuts finely, reducing them almost to powder, and they may be eaten in moderate quantity with impunity. These remarks apply to all kinds of food, and, in a measure, to grown people as well as children.

"Many persons are over nice or anxious as to *what* their children eat, and often reduce them to skeletons, or unfit them for a vigorous resistance of colds and malaria diseases by feeding them on toast or rice, weak gruel, &c. Give them rather a fair supply of hearty food *so finely reduced that it will be quickly digested in the stomach*, and they will grow vigorous and be able to withstand the changes of climate, and the exposures to which they are ever liable. Mothers, consider these things, and see if they are not true and in accordance with reason."

If we will train up our offspring in the free and early use of fresh meat, says Graham, and accustom them to high-seasoned food and richly prepared dishes, and learn them to drink tea, coffee and wine, and effeminate their bodies with feather beds and tight and enervating dress, we shall be more indebted to their want of opportunity to sin than anything else, for the preservation of their bodily health and chastity.

FRUITS AS FOOD.

Hall's *Journal of Health* recommends apples as a healthful article of food, and says that if taken freely at breakfast, with coarse bread and butter, without meat or flesh of any kind, they have an admirable effect on the general system, often removing constipation, counteracting acidities, and cooling off febrile conditions more effectually than the most approved medicines. Solomon says "Comfort me with apples."

By an arrangement of Providence, as beautiful as it is benign, the fruits of the earth are ripening during the whole Summer. From the delightful strawberry on the opening of Spring, to the luscious peach of the Fall, there is a constant succession of delightful aliments; made delightful by that Power, whose loving kindness is in all his works, in order to stimulate us to their highest cultivation, connecting with their use also, the most health-giving influences.

It is a beautiful fact that while the warmth and exposures of Summer tend to biliousness and fevers, the free use of fruits and berries counteract that tendency. Artificial acids are found to promote the separation of the bile from the blood, with great mildness and certainty; this led to the supposition, that the natural acids, as contained in fruits and berries, might be as available, and being more palatable, would necessarily be preferred. Experiment has verified the theory and within a very late period Allopathic writers have sugges-

ted the use of fresh, ripe, perfect, raw fruits, as a reliable remedy in the diarrheas of summer.

How strongly the appetite yearns for a pickle, when nothing else could be relished, is the experience of most of us. It is the instinct of nature pointing to a cure. The want of a natural appetite, is the result of the bile not being separated from the blood, and if not remedied fever is inevitable, from the slightest grades to that of bilious, congestive, and yellow. "Fruits are cooling," is a bye-word, the truth of which has forced itself on the commonest observer. But why they are so, they had not the time, opportunity, or inclination to inquire into. The acid of the fruit stimulates the liver to greater activity in separating the bile from the blood, which is its proper work, the result of which is, the bowels become free, the pores of the skin are open. Under such circumstances, fevers and want of appetite are impossible.

To derive from the employment of fruit and berries all that healthful and nutritive effect which belong to their nature, we should, *first*, use fruits that are ripe, fresh, perfect, raw; *second*, they should be used in their natural state, without sugar, cream, milk or any other item of food or drink; *third*, fruits have their best effects when used in the early part of the day, hence we do not advise their employment at a later hour than the middle of the afternoon; not that, if perfect and ripe, they may not be eaten largely by themselves, within two hours of bed time, with advantage, but if the sourness of decay should happen to taint them, or any liquor should inadvertently be drunk afterwards, even cold water, acidity of the whole mass may follow resulting in a night of distress, if not actual or dangerous sickness. So it is better to not run the risk. To derive a more decided medicinal effect, fruits should be largely eaten soon after rising in the morning, and about midway between breakfast and dinner.

An incalculable amount of sickness and suffering would be prevented every year if the whole class of desserts were swept from our tables during the summer, and fresh, ripe, perfect fruits and berries were substituted, while the amount of money that would be saved thereby, would in some families, amount to many dollars, enough to educate an orphan child, or support a colporteur a whole year, in some regions of our country.

S L E E P .

THERE is no fact more clearly established in the physiology of man than this, that the brain expends its energies and itself during the hours of wakefulness, and that these are recuperated during sleep; if the recuperation does not equal the expenditure, the brain withers—this is insanity.

Thus it is that, in early English history, persons who were condemned to death by being prevented from sleeping, always died raving maniacs; thus it is, also, that those who are starved to death become insane; the brain is not nourished, and they cannot sleep. The practical inferences are these:

1. Those who think most, who do most brain work, require most sleep.

2. That time saved from necessary sleep is infallibly destructive to mind, body, and estate.

3. Give yourself, your children, your servants—give all that are under you—the fullest amount of sleep they will take, by compelling them to go to bed at some regular early hour, and to rise in the morning the moment they awake; and, within a fortnight, nature, with almost the regularity of the rising sun, will unloose the bonds of sleep the moment enough repose has been secured for the wants of the system.

This is the only safe and sufficient rule—and as to the question how much sleep any one requires, each must be a rule for himself—great nature will never fail to write it out to the observer under the regulations just given.

If you find yourself inclined to wake up at a regular hour in the night and remain awake, you can break up the habit in three days, by getting up as soon as you wake, and not going to sleep again until your usual hour for retiring; or retire two hours later and rise two hours earlier for three days in succession; not sleeping a moment in the day time.

By all means sleep enough, and give all in your care sleep enough, by requiring them to go to bed at some regular hour and to get up at the moment of spontaneous waking in the morning. Never waken up any one, especially children, from a sound sleep, unless there is urgent necessity; it is cruel to do so. To prove this we have only to notice how fretful and unhappy a child is when waked up before the nap is out. If the brain is nourished during sleep it must have most

vigor in the morning; hence the morning is the best time for study, for then the brain has most strength, most activity, and must work more clearly. It is the midnight lamp "which floods the world with sickly sentimentalities, with false morals, with rickety theology, and with all those harum scarum dreams of human elevation, which abnegate Bible teachings."

Let parents make every possible effort to have their children go to sleep in a pleasant humor. Never scold, or give lectures, or in any way wound a child's feelings as it goes to bed. Let all banish business and every worldly care at bed-time, and let sleep come to a mind at peace with God and all the world.

Children should never be allowed to go to sleep with cold feet; the thing to be last attended to, in putting a child to bed, should be to see that the feet are dry and warm; neglect of this has often resulted in dangerous attack of croup, diphtheria, or fatal sore throat.

Young people should sleep on hair pillows two inches thick. Thicker pillows, or none at all, are unhealthful. Much of that ugly pushing forward of the head among girls is produced by thick pillows.

It is better to go to sleep on the right side, for then the stomach is very much in the position of a bottle turned upside down, and the contents of it are aided in passing out by gravitation. If one goes to sleep on the left side the operation of emptying the stomach of its contents is more like drawing water from a well. After going to sleep let the body take its own position. If you sleep on your back, especially soon after a hearty meal, the weight of the digestive organs, and that of the food, resting on the great vein of the body, near the backbone, compresses it, and arrests the flow of the blood more or less. If the arrest is partial the sleep is disturbed, and there are unpleasant dreams. If the meal has been recent and hearty the arrest is more decided; and the various sensations, such as falling over a precipice, or the pursuit of a wild beast, or other impending danger, and the desperate effort to get rid of it, arouses us, and sends on the stagnating blood; and we wake in a fright, or trembling or perspiration, or feeling exhausted, according to the degree of stagnation, and the length and strength of the efforts made to escape the danger. But, when we are not able to escape the danger—when we do fall over the precipice—when the tumbling building crushes us—what then? *That is death!* That is the death of those of whom it is said, when found lifeless in the morning—"That they were as well as they ever were the day before," and often it is added, "and ate heartier than common!" This last, as a frequent cause of death to those who have

gone to bed to wake no more, we give merely as a private opinion. The possibility of its truth is enough to deter any rational man from a late and hearty meal. This we do know with certainty, that waking up in the night with painful diarrhea, or cholera, or bilious cholic, ending in death in a very short time, is properly traceable to a late large meal. The truly wise will take the safe side. For persons who eat three times a day, it is amply sufficient to make the last meal of cold bread and butter, and a cup of some warm drink. No one can starve on it; while a perseverance in the habit soon begets a vigorous appetite for breakfast so promising of a day of comfort.

To make sleep refreshing: 1. Take sufficient exercise in the open air during the day. 2. Eat light suppers, always two or three hours before retiring. 3. Avoid tea and coffee, and all unnatural stimulants. 4. Retire early. All animals, except those that prowl at night, retire to rest as soon as the sun goes down. The early hours of sleep are the most sweet and refreshing. 5. Eschew feather beds; sleep on hair or husk or spring mattresses, with a light covering of bed-clothes. 6. Be sure and have your room well ventilated.

Beds should be well covered in winter; it is better to sleep too warm than too cold.

How to get sleep is to many persons a matter of great importance. Nervous persons, who are troubled with wakefulness and excitability, usually have a strong tendency of blood on the brain, with cold extremities. The pressure of blood on the brain keeps it in a stimulated or wakeful state, and the pulsations in the head are often painful. Let such rise and chafe the body and extremities with a brush or towel, or rub smartly with the hands, to promote circulation, and withdraw the excessive amount of blood from the brain, and they will fall asleep in a few moments. A cold bath, or a sponge bath and rubbing, or a good run, or a rapid walk in the open air, or going up or down stairs a few times just before retiring, will aid in equalizing circulation and promoting sleep. These rules are simple and easy of application in castle or cabin, mansion or cottage, and may minister to the comfort of thousands who would freely expend money for an anodyne to promote "Nature's sweet restorer, balmy sleep."

An hour's sleep before midnight is worth two after.

DISEASES AND DOMESTIC REMEDIES.

HEADACHE.

THE best thing for headache is cold baths in the morning and strict attention to diet and the bowels. If constipation exists use cold injections except in cases of menstruation, when bathing the feet in warm water will be useful. Dr. Beach says bathing the crown of the head every morning in cold water has proved a sovereign remedy.

DIZZINESS OF THE HEAD.

Lie down in a cool quiet place, and apply cold water to the head.

SICK HEADACHE.

Is sickness at stomach, a tendency to vomit, combined with pain in some part of the head, generally the left side. It is caused by there being too much bile in the system, from the fact that this bile is manufactured too rapidly, or is not worked out of the system fast enough, by steady, active exercise. Hence sedentary persons, those who do not walk about a great deal, but are seated in the house nearly all the time, are almost exclusively the victims of this distressing malady. It usually begins soon after waking up in the morning, and lasts a day or two, or more. There are many causes; the most frequent is, derangement of the stomach by late and hearty suppers; by eating too soon after a regular meal—five hours should, at least, intervene; eating without an appetite; forcing food; eating after one is conscious of having had enough; eating too much of any favorite dish; eating something which the stomach cannot digest, or sour stomach. Any of these things may induce sick headache; all of them can be avoided. Over-fatigue, or great mental emotion of any kind, or severe mental application, have brought on sick headache, of the most distressing character, in an hour; it is caused by indulgence in spiritous liquors. When a person has sick headache, there is no appetite; the very sight of food is hateful; the tongue is furred; the feet and hands are cold, and there is a feeling of universal discomfort, with an utter indisposition to do anything whatever.

A glass of warm water, into which has been rapidly stirred a heaping teaspoonful of salt and kitchen mustard, by causing instantaneous vomiting, empties the stomach of the bile, or indigested sour food, a grateful relief is often experienced on the spot; and rest, with a few

hours of sound, refreshing sleep, completes the cure, especially if the principal part of the next day or two is spent in mental diversion and out-door activities, not eating an atom of food—but drinking freely of cold water or hot teas—till you feel as if a piece of plain, cold bread and butter would “taste really good.”

Nine times in ten the cause of sick headache is in the fact that the stomach was not able to digest the food last introduced into it, either from its having been unsuitable, or excessive in quantity. When the stomach is weak, a spoonful of the mildest, blandest food would cause an attack of sick headache, when ten times the amount might have been taken in health, not only with impunity but with positive advantage.

Those who are “subject to sick headache” eat too much and exercise too little, and have cold feet and constipation. A diet of cold bread and butter, and ripe fruits or berries, with moderate continuous exercise in the open air, sufficient to keep up a very gentle perspiration, would, of themselves, cure almost every case within thirty-six hours. Two teaspoonfuls of pulverized charcoal, stirred in half a glass of water, and drank, generally gives instant relief. Java coffee, made very strong, taken clear, and in very small quantities every few minutes, is believed an infallible remedy. It should be taken, however, before the stomach becomes much riled, otherwise it will become ejected, and of course unavailing.

NEURALGIA.

From two Greek words, *Neuros*, nerve, and *Algos*, pain; means nerve-pain; but as there is no pain except in connection with the nerves, every pain or ache in the body is really “neuralgia.” Ailments are generally named from the part affected, or the nature of the malady. “Headache,” because the pain is in the head. “Pleuritis,” or pleurisy, because there is an inflammation, too much arterial blood in the *pleura*, or covering of the lungs.

Neuralgia is always caused by bad blood; bad, because too poor or too much of it; too poor, because there is not exercise and pure air enough to secure a good digestion, and the person is thin and pale; too much blood, because there is too much eating, and the bowels not acting every day, more is taken into the system than passes from it, and it is too full. The person may be fleshy enough, and does not appear sick at all. For a week, live on cold bread and butter, fruits, and cold water. Take an enema of a pint, or more, of tepid water,

daily, and spend the whole of daylight in active exercise in the open air, and the neuralgia will be gone in three cases out of four—the feet being kept warm, and the whole body most perfectly clean.

There are two kinds of neuralgia, sharp and dull; both caused by there being too much blood in or about the nerve. Perhaps arterial blood gives the sharp, venous blood the dull or heavy pain. In either case the pain is of all forms of intensity, from simple discomfort to an agony almost unendurable. In the more fleshy parts, the pain is less severe, since the soft flesh yields before the distending nerve; distended by more and more blood getting into it, till it is occasionally three times its usual size; but when the nerve is in a tooth, or between two bones, or passes through a small hole in the bone, as in the face, or “facial neuralgia,” which is neuralgia proper, or the *Tie Douloureuse* of the French, the suffering is fearful, because there is no room for distension, and every instant, the heart by its beating, plugs more blood into the invisible blood vessels of the nerves. But in any such case, open a blood vessel in the arm, or elsewhere, till the person is on the very point of fainting, and the most excruciating neuralgia is gone in an instant, because the heart ceases to send on blood, and the blood already in a part as naturally flows out of it, as water naturally flows out of an uncorked bottle, on its side.

Hence a skin kept clean by judicious washings and friction, helps, by its open pores, to unload the system of its surplus; the bowels kept free by fruits, berries, coarse bread, and cold water, is another source of deliverance of excess. While these articles of food supply but a moderate amount of nourishment, in addition, active exercise still more rapidly works off the surplusage of the system, and the man is well; not as soon as by the bleeding, but by a process more effective, more certain, more enduring, and without harm or danger. Hence there is no form of mere neuralgia which is not safely and permanently cured in a reasonable time by strict personal cleanliness, by cooling, loosening food, as named, and by breathing a pure air in resting in our chambers at night, and in moderate labor out of doors during the hours of daylight. Those who prefer uncertain physic or stimulants to these more natural remedies, are unwise, and ought to have neuralgia—a little.

Burdock leaf, applied externally, is said to be an almost infallible cure. For neuralgia or toothache bind to the face, or wherever the pain is, bruised horse-radish roots, or the leaves bruised. It is said that neuralgia is cured in Paris simply by an application of brass or copper.

The following has been tried in several cases, every time effecting an immediate cure: Half a drachm of sal ammonia in an ounce of camphor-water, to be taken a teaspoonful at a dose, and the dose repeated several times, at intervals of five minutes, if the pain be not relieved at once. In one case, the sufferer, a lady, had been affected for more than a week, and her physician was unable to alleviate her sufferings, when a solution of sal ammonia in camphor-water relieved her in a few minutes.

RHEUMATISM.

Make a poultice of strong mustard, mixed with garlic, vinegar, and a few crumbs of bread or meal. Go to bed, have plenty of clothes placed over you to induce perspiration, and have this poultice placed about a quarter of an inch thick close to the hollow of your feet (no cloth between it and the skin;) keep it on for ten or fifteen hours, then take off the poultice, and the cure is complete. There is no doubt that this has performed numerous cures in difficult cases.

Professor Turner says, For rheumatism, pains in the side, shoulders, back and joints, croup, sore throat, bruises, strains, cuts and lacerations of all sorts on men and animals, apply coal oil to the parts and rub it in. Having tried this for croup in the case of a child of our own, also in other cases with great satisfaction, we can recommend it.

Lemon juice is relied on by the physicians of London, for curing rheumatism. Three tablespoonfuls per day is a dose for a man.

Mr. William Boswell, a gentleman of Louisville, Kentucky, was afflicted with rheumatism for years, and was in fact a cripple. He had had the best medical advice but received no benefit. Finally a Paris physician whom he met recommended the following, and he tried it. It effected an entire cure. It has now been years since he has had an attack: Get one ounce of the iodide of potassa, put it in a quart bottle of soft water, and take for a dose two-thirds of a common sized stem wineglass three times a day, a half hour before meals. Avoid strong drink and gross diet. Should the glands of your neck get sore you must reduce the dose. You must take rest, and take four bottles of the medicine before you stop, and then quit it for two weeks. Then take two bottles more, which will in all probability complete the cure. You must keep your bowels open.

Another remedy is half an ounce of pulverized saltpetre, put in half a pint of sweet oil; bathe the parts affected, and a sound cure

will speedily be effected. Or bathe the parts affected with water in which potatoes, with the skins, have been boiled, as hot as can be borne, just before going to bed; by the next morning the pain will be much relieved if not removed. One application of this simple remedy has cured the most obstinate rheumatic pains.

A lady sends the following: After suffering for two years, day and night, an application of the lotion removed all pain in twenty-four hours. Take equal quantities each of spirits of wine, turpentine, sweet nitre, and oil of juniper. Mix these well together. Let the lotion be well rubbed in on the part affected. Ten drops may be taken at bed time in a glass of cold water.

The following is recommended as an invaluable remedy: Take a half pint of spirits of turpentine, to which add half an ounce of camphor, let it stand till the camphor is dissolved, then rub it on the part affected, and it is said it will never fail of removing the complaint. Flannels should be applied after the part is well fomented with turpentine. Repeat the application morning and evening. It is said to be equally available for burns, scalds, bruises and sprains, never failing of success.

For rheumatic pains or even pleurisy we would strongly recommend trying a *hot bag of salt*, placed upon the suffering part. We have known acute pain to be easily removed by one application only, though it is well worthy a persevering trial.

A popular and efficient remedy is composed of one ounce each of oil rosemary, oil cloves, oil origanum, spirits turpentine, spirits ammonia, tincture cantharides, and alcohol. Mix in a light glass-stopper bottle, and shake up when used. Heat a saucer on embers, pour a little in the saucer, and rub it on the part affected, with the hand, previously warmed by the fire, so as to encourage absorption. Said to be also good for sick-headache.

INFLAMMATORY RHEUMATISM.

Wet three or four thicknesses of cotton or linen cloth—say as large as the palm of the hand—in the oil of hemlock. Apply it to the hollow of the feet as a draft. Moisten as often as it gets dry. It often gives relief in twenty-four hours.

GOUT.

There is generally thought to be a great deal more pleasure in

bringing on the gout than in bearing it. An application of cold water upon its first approach and repeated frequently has been productive of excellent results. Pour the water on the affected part, or plunge it in the water. Salt may be added to it. In case of severe pain a poultice made by simmering together slippery elm bark and vinegar should be applied. Abstain from spirits, wine, and flesh, take light and early suppers, go early to bed and rise early, and gradually, regularly, and perseveringly increase your exercise from day to day until the disease is entirely eradicated.

DYSPEPSIA.

Were the question to be asked, "What disease is most prevalent among mankind?" a countless multitude of haggard, pallid, and melancholy faces would answer, "Dyspepsia." In all lands to which civilization has extended, this disease exists, but in this country the number of dyspeptics is larger, in proportion to the population, than in any other on the face of the earth. It is unquestionably one of the greatest of human afflictions, inasmuch as it not only breaks down the physical system, but depresses the mental and moral faculties to the verge, in many instances, of positive imbecility.

The complaint takes many shapes, ranging from a temporary ailment to protracted, exhaustive disease, unfitting the sufferer alike for the business and the pleasures of life, and rendering existence a burden. In fact, not a few of the suicides committed in this country and in Europe are due to the mental depression caused by Dyspepsia. One of the most unpleasant circumstances connected with the malady, is the want of consideration shown by the healthy for those who suffer under its agonies. The patient is too often thought to be the victim of many fancies, which the exertions of a little energy would speedily dispel. But it should be remembered that the energy supposed to be required has been in most cases literally crushed out by the disease.

The causes of dyspepsia are various. Want of exercise in the open air, rapid eating, over-eating, privation and exposure, exhaustive manual, or mental labor, the excessive use of tobacco, and extremes of heat and cold, are among the most prominent. Grief and anxiety may also be mentioned as tending strongly to aggravate the complaint.

Its symptoms are almost as varied as its causes. The dyspeptic has serious physical evils to contend with—such as pain in the chest and

other parts of the body, especially the left side, the pit of the stomach and across the *sternum* or breast-bone. The muscles of the body become soft and flabby, manifesting soreness on the least unusual exertion. There is tenderness in the touch in the region of the stomach and hips. The feet and hands are sometimes cold and rigid, sometimes hot and burning. The skin is dry, rough and pale. Night does not bring repose to the patient. Broken sleep and unpleasant dreams render the hours when nature should recruit her energies more unendurable than the day. These symptoms, however, are continually changing, old ones vanishing, and new ones equally distressing make their appearance. Palpitation of the heart, dizziness, faintness, ringing and other sounds in the ears, cough and nervous tremors, are among the unpleasant visitations of the unfortunate invalid.

But the mind suffers even more acutely than the body. Everything is seen through a gloomy atmosphere. Imaginary misfortunes cast their shadows over the future. Hope is almost extinguished, and an irritability sometimes bordering on insanity renders the dyspeptic inconsiderate and unkind to all with whom he has to do.

Upon the whole, it must be admitted that the disease in its confirmed and chronic form is physically, mentally, and morally, one of the most afflictive in the long catalogue of human ailments.

Treatment.—The objects to be kept in view in the treatment of dyspepsia are first, to obviate the several exciting causes of it. Second, to relieve the urgent or distressing symptoms, and third, to improve the tone and energy of the stomach.

The most important thing in this disease, in order to remove the exciting cause and effect a cure, is to pursue a rigid course of diet and regimen. Indeed, it is useless to prescribe medicine without a strict adherence to such measures. Strict and undeviating attention must be paid to diet, both in quality and quantity. Meals should be taken at regular hours, and only a small quantity eaten at a time, with very little drink. Excess and dissipation of all kinds must be avoided, also late hours, indolence, wine and ardent spirits, hot bread, pastry, food cooked in fat, &c. Rise early, exercise in the open air, and take a shower bath frequently, rubbing the surface well afterwards, with a coarse towel. And remember that when once the stomach has been weakened by disease, it is only by a slow process that it ever resumes its lost functions.

There are some general principles applicable to all, and which will seldom fail of high advantage.

1. The entire body should be washed once a week with soap, water and a stiff brush.
2. Wear woolen next the skin the year round, during the daytime only.
3. By means of ripe fruits and berries, coarse bread, and other coarse food, keep the bowels acting freely once in every twenty-four hours.
4. Under all circumstances, keep the feet always clean, dry and warm.
5. It is most indispensable to have the fullest plenty of sound, regular, connected, and refreshing sleep in a clean, light, well-aired chamber, with windows facing the sun.
6. Spend two or three hours of every forenoon, and one or two of every afternoon, rain or shine, in the open air, in some form of interesting, exhilarating, and unwearying exercise—walking with a cheering and entertaining companion, is the very best.
7. Eat at regular times, and always slowly.
8. That food is best for each which is most relished, and is followed by the least discomfort. What may have benefitted or injured one is no rule for another. This eighth item is of universal application.
9. Take but a teacupful of any kind of drink at one meal, and let that be hot.
10. Confine yourself to coarse bread of corn, rye or wheat—to ripe, fresh, perfect fruits and berries in their natural state—and to fresh lean meats, broiled or roasted, as meat is easier of digestion than vegetables. Milk, gravies, pastries, heavy hot bread, farinas, starches, and greasy food in general, aggravate dyspepsia by their constipating tendencies.
11. It is better to eat at regular times as often as hungry, but so little at once as to occasion no discomfort whatever.
12. Constantly aim to divert the mind from the bodily condition, in pleasant ways; this is half the cure in many cases.

It is always desirable to effect a cure if possible without recourse to medicine, but in cases where that can not be accomplished, persons may obtain further information to their advantage by addressing us on the subject.

LIVER COMPLAINT.

For this excessively prevalent disease which so severely depresses the lives of multitudes, the very best recommendations that can be given are the same as for dyspepsia, which see above. Diet and regi-

men are the all important means for effecting a cure. Medicine should not be resorted to if it can be avoided. If it must be had, those who address us with regard to it will be referred to the simplest and best.

DROPSY.

Lemons are recommended for dropsy in a Russian medical journal, and are said to be beneficial in the most hopeless cases. The first day one lemon was given, after taking the peel off, and cutting it up into small pieces in sugar; the two following days three were given, and afterwards eighteen every day. For nourishment, meat was given. In every case the water came off on the seventh day.

PALPITATION OF THE HEART.

Motherwort tea drank freely is considered one of the best remedies. The patient should lie down on the back. A tea of motherwort and skunk-cabbage is excellent.

HEARTBURN.

Saleratus and water, or magnesia and water will relieve it—say a teaspoonful dissolved in half a tumbler of water and drank at once.

BILIOUS COLIC.

Constant application of cloths wet with hot water, to the belly, or fomentation of lobelia, or mayweed, or dog fennel, or boneset, or hops, or stramonium or Jimson leaves, or mullen, or wormwood, are among the best remedies. At the same time give warm injections every ten or twenty minutes until the bowels operate.

COMMON OR WIND COLIC.

Any emetic may be given. Then a warm tea of any of the following: Ginger, cloves, essence of peppermint, spirits of camphor, sweet flag or calamus root, spearmint, peppermint, horse radish, pleurisy root, angelica, caraway, black pepper, red pepper, or any other aromatic drink, or whisky, or brandy, &c. Rub the bowels with the hand. And an injection may be given. Apply cloths wet with hot water.

THE BOWELS.

The man whose bowels are regular, and whose blood is pure, is always healthy. When a good constitution is inherited, it only needs moderate care and proper obedience to organic laws to insure health; but as such obedience involves occasional self-denial, the abandonment of objectional pleasures, and the vigorous performance of duties, it is necessarily the exception, while disobedience is the rule, and sickness the consequence.

Health consists of one action of the bowels in each twenty-four hours—less, is disease; more, is disease. A daily evacuation of the bowels is indispensable to bodily health, vigor and endurance; this is promoted in many cases, by stirring a tablespoonful of Indian meal in a glass of water, and drinking it on rising in the morning. Loose bowels, namely, acting more than once a day, with a feeling of debility afterward, is the first step toward cholera; the best remedy is instant and perfect quietude of body, eating nothing but boiled rice with or without boiled milk. It is an excellent remedy, the very moment you experience any uncomfortable sensation about the bowels, to bind around them tightly a piece of woollen cloth of any kind, to support them and keep them warm.

Bowel affections are said to be cured, if at all curable, by drinking from one-half to four half pints of tea made of the inner bark of the sweet-gum tree, boiled until the taste and color of strong coffee, with or without sugar, cold or hot. The tree abounds southward.

COSTIVENESS, DIARRHEA AND DYSENTERY.

Diarrhea is when the bowels act too often, from two to twenty times in twenty-four hours. But it is not actual diarrhea unless a man feels after a passage as if he would like to sit down, feels weak, feels as if he would like never to get up again. The passages are large and thin almost as water, there is no pain, no blood, and each passage gives relief, with increasing disposition to sit or lie down; every human desire, every human ambition is comprised in the one privilege, to be able to lie down and rest; it seems to be a luxury to every muscle in the whole body, and there are upwards of five hundred of them.

Dysentery, or bloody flux, on the other hand, is something between costiveness and diarrhea; something between a too infrequent and a too frequent action of the bowels, for it is a great and frequent desire to discharge something, but cannot, except a little blood. The desire

is intense and sudden, with a feeling as if it would give perfect relief, but when the effort is made, it produces a sensation which the ancients expressed by "Tormina" or torment.

Costiveness is less than one stool a day. *Diarrhea* is more than one stool a day. *Dysentery* is a constant desire and yet an inability to stool. *Costiveness* gives hard, bally, and scant stools. *Diarrhea* gives thin, frequent, and copious stools. *Dysentery* gives a frequent but unavailing desire to stool. *Costiveness* may or may not give pain. *Diarrhea* gives grateful relief. *Dysentery* gives intense suffering, always and under all circumstances. *Costiveness* may have a little blood. *Diarrhea* never has any. *Dysentery* always has blood; unless it has blood at almost every discharge it can not be dysentery at all. *Costiveness* unchecked, leads to a thousand different forms of disease, generally lasting a long time. *Diarrhea* unchecked, leads to cholera and a speedy death. *Dysentery* unchecked, leads to inflammation, and a death certain and painful, ending in mortification of the bowels.

CONSTIPATION.

Costive bowels have an agreeable remedy in the free use of tomatos at meals—their seed acting the way of white mustard or figs, by stimulating the coats of the bowels over which they pass in their whole state, to increased action. A remedy of equal efficiency in the same direction is cracked wheat—that is, common white wheat grains, broken in two or three pieces, and then boiled until it is as soft as rice, and eaten mainly at two meals of the day, with butter or molasses. A fresh egg beat in a gill of water and drank on rising in the morning, and at each meal, for a week or two, has been a most effective cure. A tablespoonful of Indian meal drank in a glass of water every morning at rising, has also cured most obstinate cases.

DIARRHEA.

Slippery elm bark is in many cases one of the speediest remedies. Chew the bark and swallow the mucilage—the more the better. A tea made of the bark of the sweet gum tree is said to be "the most certain remedy for diarrhea, and all similar complaints of the bowels, that ever was applied to man." The inside bark of a large tree is preferable, and a pint cup half-full of bark, steeped in a cup full of water till it is of the color of strong, clear coffee, will effect a cure in

all ordinary cases, if taken in the first stage; and most severe cases of dysentery have been repeatedly cured in six hours. Dr. Wm. P. Peck, of New Jersey, says of its use in the army, "In every case of diarrhea or dysentery where it has been used, and where I have been able to get a report of its effects, it has invariably effected a speedy cure."

One teaspoonful of salt and one tablespoonful of sharp vinegar mixed with water to be repeated within a few hours if necessary, is said to be an effectual cure for diarrhea. Ordinary diarrhea is now very successfully treated abroad, according to Dr. Markham's method—five grains of compound ipecacuanha powder in a teaspoon of gruel after each loose motion.

For chronic diarrhea, to one-quarter of a pound of hops add two quarts of water, and simmer down to about a quart; strain it upon one pound of loaf sugar; when cold, add one pint of genuine Jamaica rum; *it must be pure*. Bottle and take a wine glass full three times a day. It is said to be equally good in dysentery.

DYSENTERY.

Dr. Page of Washington City, communicates to the *Republican* of that city the following remedy, long known in family practice, and which was recently tried in the camp of the New York 22d regiment, where there were from eighty to one hundred cases daily, and with rapid cures in every case: In a tea-cup half full of vinegar dissolve as much salt as it will take up, leaving a little excess of salt at the bottom of the cup. Pour boiling water upon the solution till the cup is two-thirds or three-quarters full. A scum will rise to the surface, which must be removed, and the solution is allowed to cool. Table spoonful three times a day till relieved.

The rationale of the operation of this simple medicine will readily occur to the pathologist, and in many hundred trials I have never known it to fail in dysentery and protracted diarrhea.

CHOLERA.

The "Asiatic cholera," as first known in this country in 1832 and 1833, is chiefly a disease prevailing in warm weather, or rather in a warm atmosphere, for it can be created at any season, and in the coldest latitudes, by combining the proper degrees of the three essential requisites; namely, moisture, vegetable decay, and a regular heat,

exceeding eighty degrees. The great and distinguishing feature of cholera is a copious, frequent, and painless discharge from the bowels of a substance almost as thin as water, with a whitish tinge, as if rice had been washed in it, or as if a little milk had been dropped in it. When this occurs the patient soon begins to perspire profusely, the skin assumes a leaden hue and shrivels up, the nails become blue, insufferable cramps come on, and the victim's death occurs in a few hours with the most perfect calmness, in the fullest possession of all the faculties, and absolute freedom from every pain.

Three things ought to be known, in reference to cholera, by every human being.

First—The writer has never known a case in which it was not preceded, for one, two, or more days, by the bowels acting twice, or oftener, in every twenty-four hours; universally styled “the premonitory symptoms.”

Second—A cure is impossible under any conceivable circumstances, without absolute quietude of body, on a bed, for days together; the time of confinement being shortened, in proportion to the promptitude with which the quietude is secured, after the first action of the bowels has taken place, which gives a feeling of tiredness, and, on sitting down, a sensation of rest and satisfaction.

Third—When the patient ceases to urinate he begins to die, and its resumption is a certain index of recovering health, always and infallibly.

One of the usual attendants of an attack of cholera is an unconquerable tendency to vomit. The very instant anything reaches the stomach, even if it is but cold water, it is ejected; the mildest food meets the same fate in such cases, much less will medicine find a lodgment, except one, and that it is impossible to vomit up if it once reaches its destination; that medicine has no taste, it is small in bulk; will retain its virtues for a quarter of a century, as the writer knows by personal experience and repeated observation. Unless it is in the very last stages, it is believed capable of arresting the disease in nine cases out of ten—a pill made up of ten grains of calomel with a little gum-water; if the symptoms do not abate in two hours, double the dose, and let it work itself off; do nothing else, but let the patient be quiet and eat all the ice he can possibly want.

Cleanliness and temperance are its best, and hitherto its only, known prophylactics.

It is said that among those men who have devoted themselves to the study of that department of medical science which relates to the

cure of disease—thereapeutics—the most eminent are two Frenchmen, Pierre Charles Alexandre Louis and Alfred Arnaud Louis Marie Velpeau; and the latter says of cholera: “In a word, the malady almost always commences by characteristic symptoms, such as premonitory diarrhea. The preventive treatment is easy, and it is for each person to guard himself. Excess of every kind should be carefully avoided, and the rules of salubrity attentively observed. The means of arresting the malady at its outset are very simple. My advice is this—pour from three to four drops of laudanum on a lump of sugar, and swallow it. Repeat in two hours afterward, and so on, until the colic and vomiting pass away. Take also very small injections of starch, poppy flowers with six, seven, eight or ten drops of laudanum. This treatment will almost always suffice to stop the diarrhea, and will be a guaranty against the malady.”

Cholera is, in all cases, ushered in by “premonitory symptoms,” which, if promptly attended to on general principles, are as easily, as safely, and as certainly removed, as the very commonest disease known; in fact, if a man seeing himself have two or three actions of the bowels in twenty-four hours, in cholera times, will only go to bed and keep quiet in body and mind in a cool, clean, well-aired room, the disease will be averted and the man be well in a day or two without a single atom of any kind of medicine whatever. This great fact is incontrovertible.

The great predominant symptom of cholera, that which overshadows all others, and which is always present, never absent in one single case, is the “looseness” or the light-colored watery passages.

As means of prevention, all irregularities should be avoided. Late hours and revels, unwholesome food and intoxicating drinks are all of them but invitations to the monster to visit you. The history of former visitations of this disease proclaim it almost invariable to drinking men. Let him who loves his life abandon his cups.

General health is intimately connected with the state of the skin. It should therefore be kept clean and in a good condition. Frequent ablutions and rubbing are essential—we mean of the entire person. No one is washed who simply cleanses his hands and face and feet. What would be thought of a laundress who returned a man his shirts with collar, bosom, and wristbands washed to snowy whiteness, but the rest of the garment untouched! Yet this is a parallel to the only bath that thousands enjoy.

A like caution should be exercised in regard to the premises we occupy. Every yard and cellar should be cleansed, all standing water

drained from our lots, all decaying vegetable or animal matter everywhere removed, lime freely used both for whitewashing and as a disinfectant. All around us should be sedulously guarded against anything that can encourage pestilence.

Not the least important is a calm and quiet mind. An unexplainable connection of body and mind seems to create that which we apprehend. One always thinking of his lungs is apt to fall into consumption; of his liver, into jaundice, etc. The thought seems to turn the fluids to the part and generate that which is feared. Banish fear. The disease is not so terrific as many others that are constantly among us. Taken in time it rarely need be fatal. No disease is more manageable if taken at the proper stage.

CHOLERA MORBUS.

Take half a tablespoonful of fresh burnt, finely powdered charcoal, and a like quantity of powdered loaf-sugar, fifteen drops of peppermint; moisten with water, take, and in two hours repeat the dose.

COLDS.

A large number of fatal diseases result from taking cold, and often from such slight causes, apparently, as to appear incredible to many. But, although the causes are various, the result is the same, and arises from the violation of a single principle, to-wit, cooling off too soon after exercise. Perhaps this may be more practically instructive if individual instances are named, which, in the opinion of those subsequently seeking advice in the various stages of consumption, were the causes of the great misfortune, premising that, when a cold is once taken, marvelously slight causes serve to increase it for the first few days—causes which, under ordinary circumstances, even a moderately healthy system would have easily warded off.

Rachel, the tragedienne, increased the cold which ended her life, by insufficient clothing in the cars, in traveling from New York to Boston; such was her own statement.

The immediate cause of the last illness of Abbott Lawrence, the financier and philanthropist, was an injudicious change of clothing.

An eminent clergyman got into a cold bed in mid-winter, within fifteen minutes after preaching an earnest discourse; he was instantly chilled, and died within forty-eight hours.

A promising young teacher walked two miles for exercise, and on

returning to his room, it being considered too late to light a fire, sat for half an hour reading a book, and before he knew it a chill passed over him. The next day he had spitting of blood, which was the beginning of the end.

A mother sat sewing for her children to a late hour in the night, and noticing that the fire had gone out, she concluded to retire to bed at once, but thinking that she could "finish" in a few minutes, she forgot the passing time, until an hour more had passed, and she found herself "thoroughly chilled," and a month's illness followed to pay for that one hour.

A little cold taken after a public speech in Chicago, so "little" that no attention was paid to it for several days, culminated in the fatal illness of Stephen A. Douglass. It was a slight cold taken in mid-summer, resulting in congestion of the lungs, that hurried Elizabeth Barrett Browning to the grave within a week. A vigorous young man laid down on an ice-chest on a warm summer's day, fell asleep, waked up in a chill, which ended in confirmed consumption, of which he died three years later. A man in robust health and in the prime of life, began the practice of a cold bath every morning, getting out of bed and standing with his bare feet on a zinc floor during the whole operation; his health soon declined, and ultimately his constitution was entirely undermined.

Many a cold, cough, and consumption are excited into action by pulling off the hat or overcoat as to men, and the bonnet and shawl as to women, immediately on entering the house in winter, after a walk. An interval of at least five or ten minutes should be allowed, for however warm or "close" the apartment may appear on first entering, it will seem much less so at the end of five minutes, if the outer garments remain as they were before entering. Any one who judiciously uses this observation, will find a multifold reward in the course of a lifetime.

A cold is not necessarily the result of high or low temperature. A person may go directly from a hot bath into a cold one or into snow even, and not take cold. On the contrary, he may take cold by pouring a couple of tablespoonfuls of water upon some part of his dress, or by standing in a door, or some other opening where one part of the body is colder than another. Let it be kept in mind uniformity of temperature over the whole body is the first thing to be looked after. It is the unequal heat upon the different parts of the body that produces cold, by disturbing the uniform circulation of some part. If you must keep a partially wet garment on, it would be as well perhaps

to wet the whole of it uniformly. The feet are a great source of colds, on account of the variable temperature they are subjected to. Keep these always dry and warm, and avoid drafts of air, hot or cold, wet spots on the garments, and other direct causes of unequal temperature, and keep the system braced up by plenty of sleep, and the eschewing of debilitating food and drinks, and you will be almost proof against a cold and its results.

Some persons can almost tell in an instant when they have taken cold, generally by the disagreeable feelings of chilliness and the difficulty of getting comfortably warmed. Sometimes a person after exercising actively finds himself a little chilled before he knows it. In both cases an available, instantaneous, and almost always efficient remedy is at hand—simply walk, run, or work until free perspiration is produced, the sooner the better, and when the exercise is over, go to a room of seventy degrees Fahrenheit, or drink several cups of hot drink, taking care, if not in a warm room, to cease exercising by degrees.

If you are caught in a drenching rain, or fall in the water, by all means keep in motion sufficiently vigorous to prevent the slightest chilly sensation until you reach the house; then change your clothes with great rapidity before a blazing fire, if possible, and drink instantly a pint of some hot liquid. To allow the clothes to dry upon you, unless by keeping up vigorous exercise until thoroughly dried, is suicidal.

If a man begins to cough, as the result of a common cold, it is the result of nature herself attempting the cure, and she will effect it in her own time, and more effectually than any man can do, if she is only let alone, and her instincts cherished. What are those instincts? She abhors food and craves warmth. Hence, the moment a man is satisfied that he has taken a cold, let him do three things: 1st, eat not an atom; 2d, Go to bed and cover up warm in a warm room; 3d, drink as much cold water as he wants, or as much hot herb tea as he can, and in three cases out of four, he will be almost entirely well within thirty-six hours. If he does nothing for his cold for eighty-four hours after the cough commences, there is nothing that he can swallow that will, by any possibility, do him any good, for the cold, with such a start, will run its course of about a fortnight, in spite of all that can be done, and what is swallowed in the meantime, in the way of physic, is a hindrance, and not a good. "Feed a cold and starve a fever," is a mischievous fallacy. A cold always brings a fever; the cold never begins to get well until the fever begins to sub-

side ; but every mouthful swallowed is that much more fuel to feed the fever, and, but for the fact that as soon as the cold is fairly seated, nature, in a kind of desperation, steps in and takes away the appetite, the commonest cold would be followed by very serious results, and in frail people would be almost always fatal. These things being so, the very fact of waiting forty-eight hours, gives time for the cold to fix itself in the system, for a cold does not usually cause cough until a day or two has passed, and then to wait two days longer, gives it its fullest chance to do its work before anything at all is done.

Cider syrup, made by boiling down cider, is considered excellent for colds and coughs. Some families use nothing else for their children in even the very worst cases.

COUGHS

For coughs, colds and hoarseness, pulverized licorice, cubebs, sugar, and hoarhound, made into a lozenge, are a cheap and excellent remedy. Public speakers and singers will find it particularly useful to clear and strengthen the voice. These four articles form the basis of nearly all patent medicines advertised for these purposes, though in some instances morphine and cicuta are used. The principal thing is the cubebs combined with the licorice, sugar and mucilage. Cicuta and morphia are very powerful agents, and may do well in the hands of the physician, but should not be used without knowledge.

Flaxseed Syrup.—This excellent remedy for a cough is made thus: Boil one ounce of flaxseed in a quart of water for half an hour ; strain and add to the liquid the juice of two lemons, and half a pound of rock candy. If the cough is accompanied by weakness and want of appetite, add half an ounce of powdered gum arabic. Let this simmer for half an hour, stirring it occasionally. Take a wineglassful when the cough is troublesome.

Another mixture for a cough or cold highly prized is made as follows : Take one teacupful of flaxseed and soak it all night. In the morning, put into a kettle two quarts of water, a handful of licorice root split up, one quarter of a pound of raisins broke in half. Let them boil till the strength is thoroughly extracted ; then add the flaxseed, which has been previously soaked. Let all boil half an hour more, watching and stirring, that the mixture may not burn. Then strain and add lemon juice and sugar.

For making the best cough syrup, take one ounce of thoroughwort, one ounce of slippery elm ; one ounce of stick licorice and one ounce

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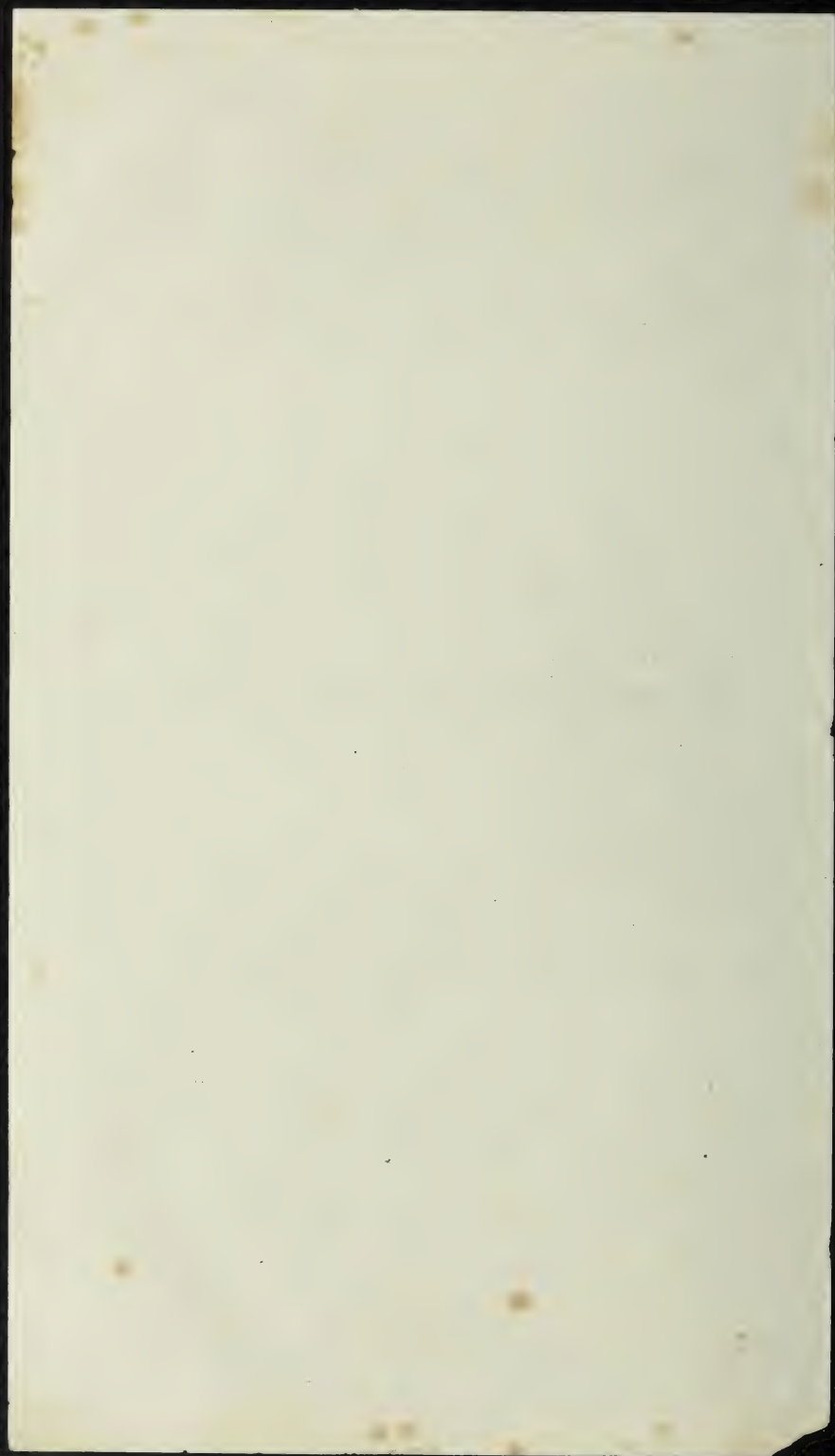
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of flaxseed; simmer together in one quart of water until the strength is entirely extracted. Strain carefully, add one pint of best molasses and half a pound of loaf sugar; simmer them all well together, and when cold bottle tight. This is the cheapest, best, and safest medicine now or ever in use. A few doses of one tablespoonful at a time will alleviate the most distressing cough of the lungs, soothes and allays irritation, and if continued, subdues any tendency to consumption; breaks up entirely the whooping cough, and no better remedy can be found for croup, asthma, bronchitis, and all affections of the lungs and throat. Thousands of precious lives may be saved every year by this cheap and simple remedy, as well as thousands of dollars which would otherwise be spent in the purchase of nostrums which are both useless and dangerous.

One teaspoonful of liquid camphor, one do. lobelia, one do. laudanum, and two tablespoonfuls of honey or loaf sugar are a good remedy, to be given one teaspoonful at night and morning, or when the fit of coughing is very severe.

Another good remedy is to smoke dried mullein leaves. But perhaps the best cough mixture of all is a suit of warm clothing, mixed with plenty of air and exercise.

WHOOPIING COUGH.

The thoroughwort, slippery elm, licorice and flaxseed preparation recommended for coughs is the best remedy that can be given in the whooping cough.

A correspondent of the *N. Y. Evening Post* recommends the best kind of coffee prepared as for the table, and given as a common drink to the child as warm as it can be drank; and a piece of alum for the patient to lick as often as it may wish. Most children are fond of alum, and will get all they need without being urged, but if they dislike it, they must be made to taste it eight or ten times in the course of the day. It will effectually break up the worst case of whooping cough in a very short time. To adults or children in the habit of taking coffee, the remedy is good for nothing.

CONSUMPTION.

Dr. Adams, a prominent physician in the city of Toronto, says that consumption is not, as is generally supposed, a disease of the lungs, but rather disease of the blood, which from becoming disordered in

time affects the lungs; therefore, he maintains that by keeping the blood in a pure and healthy condition, by careful attention to diet, abstinence from all stimulants, with plenty of out-door exercise, and pure air, even those whose constitutions may be predisposed to consumption, may effectually overcome the tendency. He speaks in strong terms of condemnation of the use of coffee, tea, liquors, and tobacco, and says that thousands annually are rendered victims of consumption by the use of such stimulants.

The essential, the fundamental, the all-controlling agency in arrest of any case of consumptive disease, and a return to health for any considerable time, says *Hall's Journal of Health*, is an active, courageous, and hopeful out-door life, in all weathers, and in any latitude, with some rousing motive, other than regaining the health, beckoning them on to do and to dare.

Eat all that the appetite requires of the most nourishing food, such as fresh beef, lamb, oysters, raw eggs, fruit, vegetables, and three times a day take a glass of egg-nog, made as rich as the patient can bear. Avoid all other alcoholic drinks. Bathe twice a week in water made agreeably warm, and in a warm room; after bathing rub the body and limbs with sweet cream or sweet oil. Exercise in the open air; walking is the best. Stand erect, exercise the arms and lungs freely, keep the mind cheerful; take freely of the best cough syrup recommended for coughs, and consumption will be a stranger to your household.

Dr. Chamberlin reports to the French Academy of Sciences that cane sugar is frequently hurtful in cases of consumption. He recommends honey or a decoction of licorice as a substitute.

ASTHMA OR PHTHISIC.

One of the best remedies is to drink freely of an infusion of bruised sunflower seeds. Infuse in hot water four or five hours.

Persons subject to attacks of spasmodic asthma will receive some relief during the paroxysms, by inhaling fumes given off from burning paper prepared with saltpeter. The paper should be loose and white, the same as that used for absorbing ink blots, and it should not contain any fibres of wool. Four ounces of saltpeter, dissolved in a pint of water, makes a solution of sufficient strength for the purpose. The paper is soaked in this for a few minutes, then taken out and dried thoroughly. It is then cut into pieces four inches square, and one or two pieces burned when required. Paper prepared in this

manner gives out a considerable amount of free oxygen gas when it is burned.

Some of the most eminent British physicians are recommending the Turkish bath as a great restorative.

BRONCHITIS.

The following remedy will be found as excellent as it is simple:—Take common mullein leaves, dry and rub fine, and smoke them three or four times a day in a new pipe, taking care to draw the smoke well into the throat.

A writer in the *Baltimore Sun*, who has been afflicted severely in his family by this distressing disease, has found relief from the following: Take honey in the comb, squeeze it out, and dilute with a little water, and wet the lips and mouth occasionally with it. It had never been known to fail in cases where children had throats so swollen as to be unable to swallow. It is certainly a simple remedy, and may be a very efficacious one.

DIPHTHERIA.

Diphtheria is now a familiar household word; within a very few years, indeed, it had never been heard of by one in a million of the masses.

The three most universally prevalent symptoms in the child are, 1st, general prostration of the whole system; 2d, an instinctive carrying of the hand to the throat; 3d, an offensive breath.

Children are almost exclusively attacked with diphtheria because it is a disease of debility—a disease which depresses every power of life—hence the weaker the subject is, the more liable to an attack. An adult has only to maintain himself, the child has to do that and to grow also; hence it has a double call for a constant supply of strength; and a very little deficit in that quality of the air which gives vitality to the blood is sufficient to make a subject for a diphtheritic attack. The few grown persons who have diphtheria have invariably some scrofulous or other weakening element. Neither a man or a child in really vigorous health is ever attacked with it; they only suffer who are at the time deficient in stamina—have not the proper resisting power against the inroads of disease.

There is no evidence whatever that diphtheria is “catching.” When several members of a family are attacked, it is not because it is de-

rived one from another, but because of similarity of constitution, of habits of life, eating, drinking, air, and other surroundings.

The treatment is a well-ventilated room, sustaining nourishment, and strengthening remedies.

In the early stages of the complaint, which is always accompanied by a soreness and swelling of the throat, let the patient use a simple solution of salt and water, as a gargle every fifteen minutes. At the same time moisten a piece of flannel with a solution of the same kind, made warm as the patient can bear it, and bind it around his throat, renewing it as often as the gargle is administered, and in the meanwhile sprinkling fine salt between the flannel and the neck. Use inwardly some tonic or stimulant, either separately, or if the prostration be great, use both together. The treatment, as may be seen, is extremely simple, and if used in the earlier stages of the disease, will effect a complete cure.

The following is from a physician who says that of one thousand cases in which it has been used, not a single patient has been lost. The treatment consists in thoroughly swabbing the back of the mouth and throat with a wash made thus: Table salt, two drachms; black pepper, golden seal, nitrate of potash, alum, one drachm each. Mix and pulverize, put into a teacup which half fill with boiling water, stir well, and then fill up with good vinegar. Use every half hour, one, two and four hours, as recovery progresses. The patient may swallow a little each time. Apply one ounce each of spirits turpentine, sweet oil, and aqua ammonia mixed, every four hours to the whole of the throat and to the breast bone, keeping flannel to the part.

Diphtheria is said to be speedily arrested and cured by swallowing lumps of ice, *continuously* until relief is afforded; let them as much as possible melt in the throat. Common sore throat is cured in the same way, sometimes. The German physicians of Europe advise the gargling of the throat every morning before eating, and every evening before retiring, with the brine of Holland herring, (which can be procured at almost any German grocery,) as a preventive. This as a preventive to the spread of the disease is recommended on high authority, and when the disease is prevalent, should be adopted as a precaution.

It has been suggested that a cause of diphtheria is a want of salt in the blood, and it is said that investigations have shown such to be in reality the case, that in thirty families in which diphtheria has prevailed, food containing but little salt had been used for some time pre-

vious, and that blood from children affected with the disease showed a deficiency of the preserving element.

CROUP.

Those who have passed nights of agony at the bedside of loved children will appreciate these simple remedies as invaluable treasures. One of the most dangerous of all the diseases of young children, often destroying life in a few hours, is the croup, and may be cured simply by applying cold water—ice water if possible—suddenly and freely to the neck and chest, with a sponge. The breathing will at once be more free, and the difficulty relieved. Soon as possible let the little sufferer drink as much as it can, then wipe *dry* and cover it up warm, and soon a quiet slumber will relieve the parents' anxiety, and lead the heart in thankfulness to the Power which has given to the pure gushing fountain such medical qualities.

Or instead of cold water, have boiling water, with two or three cloths in it, to be applied alternately to the throat, as hot as can be borne with the hand, the feet and hands to be kept warm all the time, the whole body also being wrapped up warm, and the water not being allowed to drip on the clothing; this to be continued until the cough is loosened and the little patient breathes easy and falls to sleep.

The following is recommended by a correspondent of the *N. Y. Evening Post*, who says it will cure the patient in two hours: A piece of fresh lard, as large as a butternut, rubbed up with sugar, in the same way that butter and sugar are prepared for the dressing of puddings, divided in three parts, and given in intervals of twenty minutes.

Prof. J. B. Turner says, "Rub the throat of the child with coal oil." We have tried this once with a child of our own and it effected a speedy cure. Therefore we can heartily recommend it.

HICCOUGH OR HICKUP.

This may often be removed by pressure upon the collar bones, or a pinch of snuff to cause sneezing, or holding the breath as long as it can be done, by swallowing a piece of bread, by sudden fright, or by a draught of cold water or other weak liquid. When it arises from heat and acidity in the stomachs of children, a little rhubarb and chalk will remove it. Should it proceed from irritability of the nerves, take a few drops of sal volatile, with a teaspoonful of paregoric elixer. If

it still continue rub on soap liniment, mixed with tincture of opium, or a plaster may be put on the pit of the stomach, or sipping a glass of cold water with a little carbonate of soda dissolved in it.

Dr. Pretty, an English physician, claims that it is sufficient to squeeze the wrist, preferably that of the right hand, with a piece of string, or with the forefinger and thumb of the other hand.

HOARSENESS.

Sup frequently of a tea made of wheat bran sweetened with honey, or use some of the remedies recommended for coughs.

CANKER SORE MOUTH.

Take the bark off of the root of black Haw, leaves and stems of Privet, and leaves and blossoms of Thoroughwort, (Boneset)—make a tea of each separately, and take of each as follows: one cup full of black Haw, the same of Privet, and one-third of a cup full of Thoroughwort, and one-third of a cup full of honey—shake well, and it is ready for use. Alum, the size of a pea, pulverized, is considered a help. Wash the mouth from six to twelve times a day, and swallow a little each time. Baby's mouth can be swabbed with a soft linen swab, or put half or one teaspoonful into the mouth, and turn its head so that the wash will pass all through the mouth. It must be frequently used, and it will certainly cure. Keep in a cool place or it will sour.

PILES.

Inject cold water once a day, and apply an ointment made of Poke leaves and lard, or of Mullen leaves and lard, or of Stramonium leaves and lard. Boil the leaves in water until very strong, then strain and add the decoction to the lard; or, boil the leaves thoroughly in the lard, then squeeze the lard through a cloth. Apply twice or three times a day by rubbing in, and insert well within the bowel. These are all excellent. Or, introduce simply fresh lard into the rectum three times or more per day, and persevere in the application. Perfectly pure and fresh tallow is better. And the very best mutton tallow is better still.

A *very strong thick* decoction of the inner bark of White Oak, mixed with the oil of *old strong* bacon, and *thoroughly simmered* together, is

said to be a sure cure, if applied well up the rectum daily and *perseveringly*.

The following is a cheap, simple, and it is said, most infallible cure, having been used with complete success in old and inveterate cases where individuals had spent scores of dollars in medical advice. It is equally useful as a preventive. Mix one tablespoonful of sulphur with half a pint of milk, to be taken every day until favorable symptoms appear, and then occasionally as the case may require.

SORES

Of a great many cures for both man and beast, I have never met with one equal to wild black cherry bark steeped in water, for sores. It is remarkable for cleansing and healing.

Dr. Schreber, of Leipzig, recommends the use of clay as the most "energetic, the most innocent, the most simple, and the most economical of palliative applications to surfaces yielding foul and moist discharges." He moreover considers that it has a specific action in accelerating the cure. Clay softened down in water, and freed from all gritty particles, is laid, layer by layer, over the affected part to the thickness of about a line. If it becomes dry and fall off, fresh layers are applied to the cleansed surface. The irritating secretion is rapidly absorbed by the clay, and the contact of air prevented. The cure thus goes on rapidly. This clay-ointment has a decisive action in cases of foetid perspiration of the feet and arm-pits. A single layer applied in the morning will destroy all the odor in the day. It remains a long time supple, and the pieces which fall off in fine powder produce no inconvenience.

As a general rule, the less a healing sore is interfered with, the better; and certainly when it is dressed, merely the superabundant pus should be wiped away, not from the sore itself but from its vicinity.

FEVER SORE.

Make a thin bread and milk poultice, and thicken it with the bark of Sassafras root dried and pulverized very fine. Apply this regularly every eight hours for twenty days. Then apply a salve made of honey thickened with wheat flour until entirely healed.

It is claimed by some who say they have tried it that a fresh field turnip scraped and applied very frequently, say every three or four hours, night and day, will ultimately heal a fever sore.

CANCER.

Melt three pounds of lard and two ounces of beeswax, and stir into this one pound of Scotch snuff and two ounces of Verdigris. Several excellent physicians say they have known the constant and regular application of the above to effect absolute cures.

Sheep sorrel is said to be one of the most valuable agents in the cure of this dreadful disease. One method of applying it is to let the juice evaporate on a pewter plate in the sun, to the consistence of a thick extract, and apply this to the cancer, renewing it every six or eight hours, for a week or ten days, until the whole cancer turns black, with matter around it, when it may be easily removed, body and roots, by means of a pair of tweezers. The use of this plaster causes excessive pain, and requires resolution in the patient, and sometimes the aid of a dose of morphine. Reduce the inflammation with a poultice of slippery elm, and heal with any good salve or ointment for the purpose.

Another method of using the sheep sorrel is to dissolve it in water, and allow it to settle, when this deposit, after soaking for some time, is spread on the cancer, and renewed frequently. Sometimes yellow dock root and poke leaves are used with the sorrel in equal quantities according to either of the above methods. Good authorities say that poultices of yellow dock root alone, scraped and applied, have certainly effected cures in bad cases. A very strong decoction of the yellow dock is sometimes applied in place of the poultice. The same sweetened with honey should be drank freely at the same time, whether the decoction or poultice is applied, and good results may be looked for with confidence. So has the juice of poke berries dried upon a pewter plate to the consistence of a salve been most highly recommended, to be applied the same as the sheep sorrel.

SCROFULA.

The best remedies are plenty of fresh air, exercise, perfect cleanliness, bathing in salt water, and drinking salt water to keep the bowels gently open.

The following outward application, given by the late Nicholas Longworth of Cincinnati, he recommends in the strongest terms as having effected many extraordinary cures. He says: "I have never known it to fail to cure the worst case of Scrofula. It relieves pain, and can in no instance do injury."

"Put in a tumbler, or cup, one ounce of aquafortis; put in two copper cents; there will be a strong sparkling. When the sparkling ceases, put in two ounces of pure, strong cider vinegar. Leave the coppers in. Apply it to the sore twice per day, with a soft rag. It will and should give pain. If too severe, add a little more warm water. Between each application wash the sore with water, a little warmer, with a soft rag."

He adds, "I am compelled to believe it a cure for old sores. A Kentucky lawyer wrote me, that twenty years before, he had a fall and severely bruised his leg. For twenty years he had walked with a crutch and a cane. His leg lessened in size, and still sore. He tried the remedy. Found a speedy change. His leg had regained its size, and was cured; that he had thrown aside his crutch and cane, and walked as brisk as ever."

Prof. Turner, who seems to have almost unbounded faith in the uses and applications of coal oil, says it will cure scrofulous sores. Wm. R. Prince, the nurseryman of Long Island, says that ten ounces of the root of a plant known as Indian Physic will cure every manner of scrofulous disease, and quotes Dr. Ogden as "an eminent physician" who resided there, having stated in his Memoirs, "that twelve ounces of the root of this plant, taken in four doses, will restore the blood of an adult to the purity of that of an infant."

ERYSIPELAS, OR ST. ANTHONY'S FIRE.

Keep the bowels open, the skin of the whole body clean, drink of a strong tea of elder flowers, and poultice with slippery elm bark pulverized and mixed with milk, cream or buttermilk. The authority referred to under Scrofula says Indian Physic root will cure erysipelas. White lead paint as recommended for scalds and burns has been used successfully it is said. One or two applications of a poultice made of cranberries, have in some cases arrested it at once and effected a complete cure.

RINGWORM.

This annoying disease is readily cured in many cases by a mixture of equal parts of castor oil and train oil applied daily. Or boil tobacco leaves and mix with strong ley and vinegar. Wash the eruption with this. There is nothing better. Or moisten with saliva and then apply the ashes of a cigar, repeating frequently until cured. Or wash

frequently with Castile soap. And in the absence of other remedies try repeated applications of mutton tallow. Or with a pin scratch the skin entirely around the affected part.

ITCH.

This is caused by a microscopic insect which burrows in the skin, and is cured, if not permitted to run too long, simply by anointing the skin affected frequently with sulphur mixed in lard. If any considerable portion of the body is anointed particular care should be observed not to take cold, as persons have sometimes lost the use of their limbs by taking cold while using a sulphur ointment. If the disease is of long standing or much extended over the body a mixture of sulphur, cream of tartar and molasses should be taken internally.

For *Barber's Itch* take yellow dock root, pulverize it, mix it with good cider vinegar, and wet the parts with this frequently.

For *Seven Years' Itch* take strong soft soap. Wash with this two or three times a day until cured. It is said there is nothing better.

PRICKLY HEAT.

Mix a large portion of wheat bran with either cold or lukewarm water, and use it as a bath twice or thrice a day. Children who are covered with prickly heat in warm weather will be thus effectually relieved from that tormenting eruption. As soon as it begins to appear on the neck, face, or arms, commence using the bran water on these parts repeatedly through the day, and it may probably spread no farther. If it does, the bran water bath will certainly cure it if persisted in.

BOILS.

The skin of a boiled egg is one of the most efficacious remedies that can be applied to a boil. Peel it carefully, wet and apply it. It will draw off the matter, and relieve the soreness in a few hours. One or more coatings of white lead paint applied as directed for scalds and burns is a good application.

INFLAMMATION.

Dr. Benoist, of Nieuville, in France, says that inflammations on

the body are "fed" and aggravated by contact with the air. He paints the inflamed sores in erysipelas and other diseases with collodion, by which means recovery is soon brought about.

SMALL POX—VACCINATION.

To discover small pox in its early stage, as soon as the eruption appears, by pressure with the point of the finger may be distinctly felt the small, hard substance, precisely as if a small fine shot had been placed under the cuticle of the skin. This peculiar appearance belongs to no other eruptive disease. While it is and has been known to a few physicians, it is not mentioned in any of the standard authorities. It is an unfailing diagnostic symptom.

A new remedy for the small pox, the plant known as *Saracenia per-purea*, or Indian Cup, sometimes called Ladies' Saddle, also Water Cup, a native of Nova Scotia, having been mentioned as the specific used by the Indians against this disease, is said to allay the fever and irritation caused by the formation of pustules, which are rapidly dried up, leaving but slight, if any traces of the malady. It is given in the form of a tea made of the root.

In a letter addressed to the American Medical Times, Dr. F. W. Morris, President-physician of the Halifax Visiting Dispensary, states that this *Saracenia* papaveraceous plant will cure small pox in all its forms within twelve hours after the patient has taken the decoction. "However alarming and numerous the eruptions," he says, "or confluent and frightful they may be, the peculiar action of the medicine is such that very seldom is a scar left to tell the story of the disease. If either vaccine or variolous matter is washed with the infusion of the *Saracenia*, they are deprived of their contagious properties."

In the State Almshouse in Massachusetts, where this remedy was used, out of about sixty cases but one fatal result has occurred, and that was a man who was taken to the house from the neighboring town in the last stage of the disease.

A great discovery is reported to have been recently made by a surgeon of the English army, in China, in the way of an effectual cure for small pox. The mode of treatment is as follows: When the preceding fever is at its height and just before the eruption appears, the chest is rubbed with croton oil and tartaric ointment. This causes the whole of the eruption to appear on that part of the body to the relief of the rest. It also secures a full and complete eruption, and thus prevents the disease from attacking the internal organs. This

is said to be now the established mode of treatment in the English army in China, by general orders, and is regarded as a perfect cure.

A Scotch physician, Dr. Smart, has announced an invention which he asserts, has never failed in his practice to prevent the disfigurement consequent in small pox known as "pitting." The application consists of a solution of india-rubber in chloroform, which is painted over the face (and neck in women) when the eruption has become fully developed. When the chloroform has evaporated, which it readily does, there is left a thin elastic film of india-rubber over the face. This the patient feels to be rather comfortable than otherwise, inasmuch as the disagreeable itchiness, so generally complained of, is almost entirely removed, and, what is more important, "pitting," once so common, and even now far from rare, is thoroughly prevented wherever the solution has been applied.

The Surgeon-Major of the Royal Horse Guards writes to the *London Times*, that the root of the Pitcher Plant is a specific for this disease. An ounce of the root is sliced, infused in a quart of water, allowed to simmer down to a pint, and given in doses of two table-spoonfuls every four hours, while the patient is well nourished with beef tea and arrow root. A tea made of the Black Cohosh or Rattle Root is considered almost a specific.

It should be distinctly borne in mind that vaccination is an almost perfect preventative of small pox until the age of puberty (say fifteen,) but after that time it becomes less and less efficacious until twenty-five, when the system becomes less susceptible to the disease up to thirty-five, when the predisposition to small pox seems to die out altogether. The specific inference is that every child ought to be re-vaccinated on entering the fifteenth year. M. Depaul, reporter of the Vaccine Committee of the French Academy says that in spite of the opposition raised to the vaccination of new-born children, the researches of the committee tend to show that this operation is not more dangerous in very early life than at the second or third month; and adds that "if all children were vaccinated within the first two or three days after birth, small pox, already rare now in comparison with what it was formerly, would, we are convinced, completely disappear.

FEVERS.

It is little known, perhaps, that cranberries and barberries, stewed even with molasses, are remedies in fever, and as purifiers of the blood. They will keep in the form of sauce for a long time. They

are most useful in hospitals, as they neutralize the effects of salt pork.

A good drink for fever is made as follows: Put a little tea-sage, two sprigs of balm, and a little wood sorrel into a stone jug, having first washed and dried them; peel thin a small lemon, and clear from the white, slice it, and put a bit of the peel in, then pour in three pints of boiling water. Sweeten and cover it close.

TYPHUS FEVERS.

The British Parliament paid a London physician £5000, for making public the following method of preventing infection in this disease: Put three-fourths of an ounce of saltpeter in a teacup and set it on a red hot shovel. Take the same weight of oil of vitriol, and add it to the saltpeter, one-sixth at a time, stirring it with a pipe stem. Avoid the fumes as they rise from the cup. This is the quantity for a room fourteen feet square. Larger or smaller rooms of course need more or less accordingly. There is no danger in breathing the air of the room.

TYPHOID FEVER.

A Parisian physician admits air freely to the invalid's bedroom, to which plan he attributes many remarkable cures. He says there can be no infection in the open air—fresh air moreover enables a patient to take stimulants which he could not otherwise bear.

SCARLET FEVER.

A very skillful physician says: My whole practice is this—when the fever first comes on, and the patient is hot from fever, I have him sponged with cold water; and continue the treatment as long or as often as it is agreeable, or relieves the suffering. Afterwards as he becomes weaker, the water is gradually made warmer; the sensations of the patient being the guide. At the same time, he is allowed to drink all the cold water he wants—which he will never do in large quantities (as he should not) at a time, if it is always within his reach. I have known some to drink in this way by small portions, a quart in an hour. After a while this produces more or less perspiration, which greatly relieves the symptoms. This is my whole treatment. Nothing is more pernicious than the practice of giving powerful medicines in this disease. The fact is, many scarlet fever patients are drugged out of existence. We learned that this physician with a long and extensive practice, never lost but two patients with this disease.

We copy from the *Rochester* (N. Y.) *Advertiser* the following: The readers of this paper know that we do not often endorse specific remedies for diseases, but as that scourge of the younger portion of the human race, scarlet fever, does not appear to yield rapidly to medical treatment, and is now prevailing extensively, it may do no harm to give the following as a remedy, upon the authority of one who has seen it tried repeatedly and without a failure in a single instance. He says that a poultice made of the root of the common burdock boiled in milk, and applied to the neck of the patient, will cure scarlet fever. The earlier it is applied the better, but he assures us that it has effected a cure in cases where physicians had abandoned the patient as beyond hope of cure.

FALL FEVERS.

All forms of Fall fevers, says Dr. Hall, in his *Journal of Health*, have been escaped in many instances by whole families, who have at sunrise and sunset had bright fires kindled in their family rooms.

FEVER AND AGUE.

Onions used freely, particularly uncooked, are considered a preventive against this disease so common in some regions. It is even said that a raw onion eaten several mornings in succession, before breakfast, will cure the disease entirely.

Mauvy's Prevention of Fever and Ague: Plant plenty of Sun Flowers on the side of your house most exposed to malarious atmosphere.

A gentleman who was with the army on the Upper Potomac, where the ague is quite prevalent, says that an extract of the common white plantain, made by steeping the leaves in whisky, and taken before breakfast, a dozen mornings in succession, is even more certain than quinine in curing this fever. Soot coffee is a great remedy in some districts. A spoonful of soot from the chimney (not from the stove-pipe,) steeped in water, settled and seasoned like genuine coffee, is drank with every meal until it effects a cure.

MIASM.

On the wings of the viewless winds in September, the sickliest month of the year, says Hall's *Journal of Health*, there is wafted an agency of disease and death, so ethereal in its nature, so intangible to mortal sense, so insinuating, so all-pervading, that no alembic can de-

fect its presence, no prison-bar or palace-gate prevent its entrance. It is called "Miasm;" it is an emanation from the surface of the earth wherever there is vegetation, moisture, and heat equal to eighty degrees, and is the fruitful cause of many diseases which ravage whole communities at a time, such as agues, fevers, diarrhea, dysentery, cholera, pestilence, and plague. But its laws are known, and its destructive agencies can be averted by avoiding exposure and fatigue in the out-door air for the hours including sunrise and sunset, at which time a hot breakfast and supper should be eaten, by a good fire, in all prairie, flat, water course, and lake and sea-shore situations. If the people can only be induced to take these simple, easy, practicable, and comprehensible precautions, these diseases will be prevented as epidemics, or arrested in their progress, as certainly as that fire can prevent the firing of a town, and that water will put it out. These are the teachings of science, and experiment has demonstrated their truth beyond a cavil.

It is said that if those who are exposed to malaria will put as much quinine as will lie on the point of a penknife in their coffee every morning, the probability is that they will escape chronic diarrhea, fever and ague, and bilious fever.

FELON.

A strong solution of steeped yellow dock as hot as can be borne, will instantly cure the pain of a felon. It might need two or three applications to cure it; cover the vessel with flannel while bathing the felon. Strong ley, as hot as can be borne, is also an effectual remedy, if used in time. Soak the affected part in it for half an hour three times per day. Equal parts of bar soap and common salt, softened by turpentine, may then be applied. Or this may be used at first.

White lead paint, applied as directed for scalds and burns, is considered an effectual remedy. A piece of reanet soaked in milk is said, by one who has often tried it, to be effectual. The application is to be renewed at brief intervals until relief is found. A powerful remedy, which some skillful physicians have adopted, and which I have never known to fail, if applied early, is a poultice made of the strongest decoction of tobacco mixed with tar. It "draws" tremendously, and requires some "grit" to endure it long enough, but it is eminently efficient.

The following remedy is well vouched for as a certain thing: Make

a thin mortar of soap and lime—take a thimble with a top to it, fill it with mortar, and place it directly over the part afflicted—bind it on, so as to exclude the air, and renew it, once in two or three hours, till it eats through the skin. After that, apply a poultice made of flax-seed and Indian meal, till the inflammation has subsided. Then dress it with a salve of white-pine turpentine, mutton tallow and beeswax, equal parts. It has also been recommended in the following manner: “Take a pint of common soft soap and stir in air-slacked lime till it is of the consistency of glazier’s putty. Make a leather thimble; fill it with this composition, and insert the finger therein. A cure is certain.

One of the most reliable remedies is Tincture of Lobelia. As soon as the part begins to swell, wrap the part affected thick with a cloth, saturate it thoroughly with the Tincture, and the felon is dead. An old physician says he has known this to cure in scores of cases, and that it never fails if applied in season.

A poke root poultice is excellent, whether applied before or after matter is formed. The sooner the better. Or scrape Garget root, and apply it after warming a little (not to cook it.) Change it often and the cure will be effectual in most cases. Clay from an old log house softened and kept wet with camphor is good.

WHITE SWELLING.

Take the bark of the root of Bitter-Sweet, and steep it in water until the strength is extracted, then put in hog’s lard and mutton tallow, equal quantities; simmer until the water is out; afterwards strain through a cloth. Its application must be made on the first appearance of the white spot, previous to the swelling. Its tendency is to scatter the inflammation.

CRAMPS.

Rub the part with the naked hand or a rough towel, with or without some stimulating application as whisky, or spirits of champhor, &c. For cramps in the leg or arm, tie a strong bandage tight over the knee or elbow.

CHAFES.

For chafes in the groin and on other parts, on going to bed wash

the parts clean with cold water and simply sprinkle well with flour, or finely powdered starch; or finely pulverized clay.

GRAVEL.

Eat plenty of radishes, and the gravel will dissolve and relieve the pain. Eating of onions is also beneficial. A gill of the juice of red onions drank twice a day for a few days will dissolve the stone.

HYPOCHONDRIA AND HYSTERIA

No medicine is needed, but open air and exercise, light and unstimulating diet, coarse bread, as of oat or corn meal, or unbolted wheat, and perfect ripe fruits. In a hysteric fit let the clothes be loosened, plenty of fresh air admitted, and a little cold water sprinkled in the face. Apply the hartshorn or camphor bottle to the nose occasionally.

Mr. Marsh says that the best cure for the hysterics is to discharge the servant girl. In his opinion, there is nothing like work to keep the nervous system from becoming unstrung. He says some women think they want a physician when they only need a scrubbing-brush.

CURE FOR DRUNKENNESS.

There is a famous prescription in use in England, for the cure of drunkenness, by which thousands are said to have been assisted in recovering themselves. The receipt came into notoriety through the efforts of John Vine Hall, father of the Rev. Newman Hall, and Captain Vine Hall, commander of the Great Eastern steamship. He had fallen into such habitual drunkenness, that his most earnest efforts to reclaim himself proved unavailing. At length he sought the advice of an eminent physician, who gave him a prescription which he followed faithfully for seven months, and at the end of that time, had lost all desire for liquor, although he had been for many years led captive by a most debasing appetite. The receipt, which he afterwards published, and by which so many other drunkards have been assisted to reform, is as follows: Sulphate of iron, five grains; magnesia, ten grains; peppermint water, eleven drachms; spirit of nutmeg, one drachm; twice a day. This preparation acts as tonic and stimulant, and so partially supplies the place of the accustomed liquor, and prevents that absolute physical and moral prostration that follows a sudden breaking off from the use of stimulating drinks.

Sugar as a Dissipator of Drunkenness.—Dr. Lecœur, of Paris, in an article on drunkenness, after showing the good effects of ammonia in dissipating the fumes of alcohol, states that white sugar will produce the same effect. When the individual commences to feel the influence of liquor, he should eat six, eight or more pieces of sugar, of the size usually served on the table.

CURE OF APPETITE FOR TOBACCO.

A clergyman who for many years was addicted to the chewing and smoking of tobacco, resorted immediately to fresh drawn water whenever the appetite craved indulgence, and after drinking what he desired, continued to hold water in his mouth, throwing out and taking in successive mouthfuls, until the craving ceased. By a faithful adherence to this practice for about a month, he was cured, and for thirty years the appetite never again returned.

We find the following in the New York *Evening Post*: A friend of mine overcame the habit of chewing tobacco by substituting a bit of cracker for his accustomed quid. He had previously tried camomile flowers and other means, without success, and adopted the cracker upon the recommendation of a casual coach companion some years ago. His hankering for tobacco was soon overcome, and he has never had a relish for it since. He gave up the use of the cracker also in a few weeks, and as his adviser had also been cured by the same means, I am induced to offer the remedy for publication.

SELF-ABUSE.

Let no youth of intelligence ever consult a man at a distance for the ailments alluded to. It is a thousand times better to consult the family physician at home; him you can trust with safety, as to body and reputation; a thing which is never to be done by men who send books free of charge, which treat of any form of disease.

As to symptoms and debilitations of the early morning, and which have such a depressing influence on mind and body, second only to those of dyspepsia, nothing can be more certain than that there is no remedy, safe and efficient in drugs; but it must be sought in the diligent following out of some active industrial pursuit, force of will, and the cultivation of a high and manly moral power, which looks with angry and impatient contempt on all that is vicious, corrupting, and degrading, whether in deed or word or thought; this is the only effi-

cient, the only infallible remedy, and is worthy of the mature reflection of every high-minded and generous-hearted youth.

ACCIDENTS AND EMERGENCIES.

LOCK JAW—TETANUS.

To prevent this very dangerous affection, be careful that any wound, especially in the palm of the hand or bottom of the foot, and particularly if made by any pointed instrument, as a nail for instance, shall not be allowed to heal immediately. When any one runs a nail or sharp iron into any part of the body, take a common smoke pipe, light it well after filling with tobacco, then place a cloth or silk handkerchief over the bowl, and blow the smoke through the stem into the wound. Two or three pipesfull will be sufficient to set the wound discharging. Or insert into the wound a piece of nitrate of silver the size of a grain of wheat and allow it to remain until it makes a sore, then poultice.

Lock jaw has been frequently cured by injections to keep the bowels open and poultices of soft soap and Scotch snuff to the wound, the patient drinking freely of red or black pepper tea. Bathing the wounded part morning, noon, and night, an hour each, in ley as hot as can be borne, then poulticing with slippery elm bark mixed in ley and applied warm has effected cures. We have heard a great deal about the medicinal value of a poultice made of grated beet roots, and now we find the following statement, which we consider worthy of attention. The remedy is easily applied. A young lady ran a nail into her foot, which produced lock jaw of such a malignant character that her physicians pronounced her recovery hopeless. An old nurse applied a poultice of pounded beet roots, renewing it often, and the result was a complete cure.

FROST BITES—FROZEN LIMBS, &c.

Whether the whole body or only a small part be frozen it must be restored gradually, and by interior not exterior heat. Frozen limbs should never be rubbed. The juices of the fleshy tissues, when frozen in their minute sacs or cells, at once become in each of these enclosures crystals, having a large number of angles and sharp points;

and hence rubbing the flesh causes them to cut or tear their way through the tissues, so that when it is thawed, the structure of the muscle is more or less destroyed. The proper mode of treatment is as follows: When any part of the body is frozen, it should be kept perfectly quiet till it is thawed out, which should be done as promptly as possible. As freezing takes place from the surface inwardly, so thawing should be in the reverse order, from the inside outwardly. The thawing out of a portion of flesh, without at the same time putting the blood from the heart into circulation through it, produces mortification; but by keeping the more external parts still congealed till the internal heat and the external blood gradually soften the more interior parts, and produce circulation of the blood as fast as thawing takes place, most of the dangers are obviated.

A popular error exists—almost universal—that a frozen part is to be restored by rubbing it with snow. If the snow which is applied be colder than the frozen flesh, it will still further abstract the heat and freeze it worse than before. But if the snow is of the same temperature, it will keep the flesh from thawing till the heat from the rest of the body shall have effected it, thus preventing gangrene. Water, in which snow or ice has been placed, so as to keep its temperature at thirty-two degrees Fahrenheit, is probably better than snow.

The following is the method of making Wahler's Frost Salve, so long known and valued in Germany, but the receipt for which has been kept secret till recently purchased by the government of the kingdom of Wurtemberg, and made public: Twenty-four ounces mutton tallow, twenty-four ounces hog's lard, four ounces peroxyde of iron (red iron rust,) four ounces Venice turpentine, two ounces oil of bergamot, two ounces bole armenian, rubbed to a paste with olive oil. Heat together the tallow, lard, and iron rust, in an iron vessel, stirring with an iron spoon constantly till the mass assumes a perfectly black color; then add gradually the other ingredients, stirring till well mixed. It is applied upon linen, daily, and its effect upon even the most painful frost sores is most extraordinary. In all probability, for other wounds it would also be an excellent application.

Raw cotton and castor oil have restored frost-bitten limbs when amputation was thought to be necessary to preserve life. The cure is said to be infallible.

To cure the intolerable itching that follows frost-bitten toes, it is necessary to totally exclude the air from the affected part. If it is not accompanied with swelling, gum shellac, dissolved in alcohol, applied so as to form a complete coat, is an easy remedy. It dries soon.

and does not adhere to the stockings, and generally lasts until they are well. If the flesh becomes swollen and painful, plasters of good sticking salve are of great service, but if highly inflamed any mild poultice that will exclude the oxygen of the air from the diseased part, and keep it moist, allowing the recuperative powers of nature to do the rest. Burns and scalds may be treated successfully the same way.

To Avoid Great Chilling from Falling into Winter Water all that need be done is to make a quick squeeze or rub down to press the excess of water out of the clothes, then set to running as briskly as you can, but not ride. This exercise will be difficult for a few steps at first, but will succeed. If the weather is cold, your outward clothing will soon stiffen and freeze, and protect that which is under from further cooling by the air, while that next your person will warm from the heat of your body, generated by the exercise. If you reach a house in half an hour you will be safer than if you reached one in five minutes; for, when a person so immersed is immediately changed in a house, he is heated almost in vain from without—he will, in this case, continue chilly for several days after on the least exposure, even in a house; but if warmed from within outwardly, by exercise, he may then be changed, and escape future accidents, congestions, &c.

BURNS AND SCALDS.

Multitudes are annually perishing by scalds and burns, nearly all of whom might be preserved from a fatal result, if some of the simple remedies which we give were adopted immediately after the accidents. We hope that every individual will at once become perfectly familiar with the following instructions, that there may be no hesitancy in knowing just what to do when occasion requires. For these as well as other cases we give different remedies so that persons may select which they prefer, or the one that may be most convenient.

The instant you are burned or scalded, place the part in cold water, this gives perfect relief in a second, then get some flour and cover the burned part completely, an inch thick if possible, and let it remain until it is well. Cures of frightful burnings have been performed in this way, as wonderful as they are painless. If the burn or scald is extensive or severe, eat nothing until improvement commences, except some dry bread softened in weak tea of some kind, and drink nothing but water.

Raw cotton, spread out or carded, and laid on in considerable quan-

tity directly over the burn, has been found very effective; if the burn or scald is not very deep, or the skin is not broken, though it may be blistered some. Bind it on slightly, and let it remain some time. Simple as it may appear, this is one of the best applications to be had.

A coating of colodion is excellent. The white of an egg has proved, of late, one of the most efficacious remedies for burns. Seven or eight successive applications of this substance will sooth the pain and effectually exclude the burned parts from the air. This simple remedy seems far superior to colodion or even cotton.

It is said that an Indian meal poultice, covered with young hyson tea, softened with hot water, and laid over burns, as hot as can be borne, will relieve the pain in five minutes. Recommended also for frost bites. The effect of pulverized charcoal and oil applied immediately to either scalds or burns is said to be miraculous. Lamp oil will do; but linseed oil is better. A French paper says that by accident charcoal has been discovered to be a sure cure for burns. By laying a piece of cold charcoal upon a burn the pain subsides immediately. The remedy is cheap and simple and deserves a trial.

White lead paint applied immediately in several successive coatings has been recommended for all cases of burns and scalds except those which are *very* extensive or *very* deep. Dip either a brush or feather into the paint and draw it gently over the injured part, extending the coating an inch or so beyond the margin of the inflamed surface. When the first seems quite thin or cracks, apply a fresh coating. In a week or so it will peel off. Equal parts of raw linseed oil and lime water applied to the injured part five or six times a day is also recommended. Many families keep this liniment prepared and on hand all the time.

The skin of hog's lard applied immediately to keep the air out is much used. Oiled silk is a good substitute.

When the burn degenerates into an ulcer, and becomes difficult to heal, in consequence of proud flesh, sprinkle over it occasionally a little powdered burnt alum, and dress it with salve, or a bread and milk poultice, the same as any common sore.

If your clothing takes fire, slide the hands down the dress, keeping them as close to the body as possible, at the same time sinking to the floor by bending the knees; this has a smothering effect on the flames; if not extinguished, or a great headway is gotten, lie down on the floor, roll over and over, or better, envelop yourself in a carpet,

bed-cloth, or any garment you can get hold of always preferring woolen.

BURNING TO DEATH.

This is a terrible calamity, yet it is a daily occurrence, and is almost always the result of gross carelessness, recklessness or ignorance. The number of persons burned or scalded to death in England, from 1848 to 1861, is officially stated at 39,927, or an average of eight a day. Of the whole number, 1,344 were infants under one year of age; 4,500 were children of one and under two years, and 9,777 were between two and four years of age. Between the ages of five and fifteen, 6,255 girls and 3,750 boys were burned to death.

Loss of life from the clothing taking fire may occur any hour in any family. The prevention and the remedy are matters of personal interest, at least to all parents; and certainly every school teacher in the land should know how to act in the premises. Dresses can be made so that they will not readily take fire. The most available plan, the most economical and the most accessible is to soak the clothing in strong salt water just before wringing it out. There are other preparations used, such as a solution of sulphate of ammonia, tungstate of soda, etc., but the advantage of common salt is, that while it is as efficacious as others, it is not so liable to injure the colors of the dress. The next best thing is to know how to act in case of the dress taking fire. The beautiful and accomplished wife of a great name lately died, within the hour, by her dress having taken fire from a bit of blazing sealing wax falling on it, while she was affectionately amusing her sweet little children at the sewing table. Her husband was in an adjoining room and was instantly at her side, but either had not the knowledge or presence of mind to arrest the progress of the flames. Perhaps three persons out of four would rush right up to the burning individual and begin to paw with their hands, without any definite aim. It is useless to tell the victim to do this or that, or call for water. In fact, it is generally best to say not a word, but to tear up the carpet, or seize a blanket from the bed, or a cloak, or any woolen fabric—if none is at hand, take any woven material—hold the corners as far apart as you can stretch them out higher than your head, and running boldly to the person, make the motion of clasping in the arm, most about the shoulders, this instantly smothers the fire and saves the face; the next instant throw the unfortunate on the floor; this is an additional safety to the face and breath, and any

remnant of flame can be put out more leisurely. Immediately immerse the burned parts in cold water, and all the flame will cease with the rapidity of lightning, then get some common flour, and the moment the burned parts are removed from the water cover them with the flour as thick as possible. Put the patient to bed, and let the flour remain until it falls off of itself. Unless the burns are deep, no other application is needed. The dry flour, like the water, causes instant and perfect relief from pain by totally excluding the air from the injured parts, and is one of the most admirable remedies known.

POISONS AND ANTIDOTES.

Prompt application of the simple antidotes here recommended would every year save thousands of valuable lives from the fatal effects of poison. As you value your own life, as you love the devoted wife and dear children whom God has given you, we beseech you treasure in your mind and teach to every member of your household of sufficient years, the simple but invaluable directions which we here give. Let every one be made perfectly familiar with them at once, so that in case of need there shall be no unnecessary delay, and consequent sacrifice of life.

If any poison is swallowed, drink instantly a glass of water with a heaping teaspoonful each of common salt and ground mustard stirred into it; this vomits as soon as it reaches the stomach; but for fear some of the poison may still remain, swallow the white of one or two raw eggs or drink a cup of strong coffee, these two being antidotes for a greater number of poisons than any dozen other articles known, with the advantage of there being always at hand; if not, a half pint of sweet oil or lamp oil, or "drippings," or melted butter or lard are good substitutes, especially if they vomit quickly. Two teaspoonfuls of mustard in place of one each of mustard and salt will answer, though they are not as good. And sweet milk or cream may be used instead of the coffee if that cannot be had.

The antidote of a poison is that which renders it instantly harmless; this it does by converting the elements or ingredients of the poison into new compounds, which are wholly innocuous. But in all these cases, the benefits to be derived from the employment of an antidote, are proportioned to the instantaneousness of the application; the importance of this is very generally understood, but it serves to deprive friends of all presence of mind; they are thrown into such a flurry, as to be incapable of connected thought, or efficient action. It may

therefore save many a human life, if the reader will impress upon his mind two or three general principles. It is true, that "every bane has its antidote," but as there are hundreds of poisons, and the memory would be over-taxed with an antidote for each, it is agreeable to note that some substances are perfect antidotes against a dozen poisons; and it is fortunate, too, that these substances are almost always at hand, even in the poorest households. Strong coffee; salt and mustard; white of eggs; any kind of domestic oil, lard or grease—these four things antagonize almost all ordinary poisons. If the reader will bear this in mind, he can be happily and efficiently calm, under almost any circumstances of poison, in which he is likely to be placed.

1. Prevention is best. No poisonous substance should be allowed in any household for one single instant, after it is out of the hand; whatever has been left after use, should be at once thrown into the sink, or carried out into the street or road, broken, poured out or scattered.

2. The very moment you see anything in a paper or bottle or other vessel, without a mark showing what it is, empty it without a moment's delay into the sink; this is safer than throwing it into the fire, for it may be inflammable or explosive, and cause much mischief.

3. Never take, taste, or give anything, whether powder or fluid in the dark, or without looking deliberately at the label, in a clear light, although you may have put the vessel or paper down with your own hand, a minute before.

But from inattention, recklessness, or design, poisons will sometimes be swallowed, and the truly wise will inform themselves beforehand, as to the best means of procedure.

1. Send for a physician. Meanwhile, remember that the effect of administered poison is instantaneous, or comes on slowly. If instantaneous, the patient immediately cries out with the sensation of heat or burning, or scalding at any point from mouth to stomach; the presumption then is, that some corrosive poison has been taken; something which eats or destroys or disorganizes the muscles or fleshy parts of the tongue, mouth, throat, stomach, etc; most poisonous substances of this sort are acids, and the first best remedy likely to be at hand, is common soap dissolved in water, or soda or saleratus or magnesia; but in the hurry of inexperienced hands the remedy may be made so strong as to become of itself another poison, hence it is best to take the simplest thing which is most likely to be at hand, and which can not injure in any quantity or strength in which it can be taken; hence for poisons which cause an instantaneous sensation of burning

in the throat, etc., drink a teacupful of sweet oil or lard or grease of any sort; the most that can happen from an over amount is that it will be vomited up, and this brings more or less of the poison out of the stomach; then you can more leisurely drink magnesia-water or strong soap-suds, or a tablespoonful of wood-ashes, put in half a pint of lukewarm water, stir, let it settle two minutes, pour it off and drink.

If a powder has caused the urgent sensations, the most generally applicable antidote is to swallow one or two raw eggs; the white is the efficient part, but there may not be time to separate the yelk; this is best in poisons from arsenic, corrosive sublimate, verdigris, creosote, etc.

If the effect is not instantaneous, and time may be taken, the first best thing to be done in all cases is to get the poison out of the stomach instantly, by swallowing every five minutes a tea cup of warm water into which has been stirred a full teaspoon each of common salt, and ground kitchen-mustard; there is vomiting almost as soon as it reaches the stomach; then drink a cup or two of very strong coffee, which is the best remedy for all anodyne poisons, as opium, morphine, laudanum, etc., etc. In short, if the sufferings are instantaneous and urgent, drink sweet oil or soapsuds; if gradual or causing drowsiness, mustard emetic, strong coffee or white of eggs.

For Poison Vines, Ivy, etc.—It is said that persons liable to be thus poisoned may escape by washing previous to exposure with lye from wood ashes. Washing thoroughly soon after in cold water is said to be a preventive. The sooner the better. Washing in hot water soon after contact with the ivy, &c., is regarded as a perfect preventive. The application of a paste made of gunpowder, or sulphur, with milk, is an effectual remedy. Renew night and morning, until cured. Live on gruel, soups, rice, and other mild food, having the bowels to act twice a day. A newspaper correspondent says, I have twice cured myself when poisoned with ivy, by immersing the poisoned parts in soft soap for thirty minutes. The first time I tried this I merely put my feet in the soap because it made them feel better. The second time, it being on my hands, I put them in soap to cure them, and it did it. It is the three leaved ivy that is poison. The five leaved variety is innocent, and it is said a perfect antidote for the poison of the three leaved variety. Chew the leaves of the five leaved ivy and rub the juice on the poisoned parts. It has been known to stop the itching at once and effect a permanent cure.

Poisoned Atmosphere.—Dr. Richardson, an English chemist, says that iodine, placed in a small box, with a perforated lid, destroys or-

ganic poison in rooms. During the continuance of an epidemic small pox in London he saw the method used with benefit.

POISONOUS BITES AND STINGS.

If there is no sore about the mouth or lips suck the poison out of the wound as soon as it is made, and spit it out, for some minutes in succession; or, better still, wash the parts most freely with spirits of hartshorn, (an ounce vial of which should be considered one of the indispensables in traveling,) because that is an alkali, and the bites and stings of reptiles and insects are acid, hence are nullified by the strong alkali. If there is no hartshorn at hand, make an alkali by wetting fresh wood ashes with water and apply it to the wound as a poultice, renewing it every half-hour until relieved. Strong alkaline washes instantly applied are believed to be a perfect preventive of serious harm from all bites and stings, except from a mad dog or rabid creature.

Snake Bites.—Turpentine is said to be a sure cure for the bite of a snake. It should be put in a bottle, and the mouth being placed over the spot, the liquid brought directly in contact with the wound by inverting the bottle, which should be held there until relief is obtained. A complete alleviation of pain has been known to ensue in less than a quarter of an hour. Plantain leaves and lobelia leaves are considered an antidote for the bite or sting of venomous animals—twice as much of the former as the latter mixed with boiling water, and when cool, bound on the affected part. A toad after being bitten by a snake was seen to immediately eat of the plantain leaf—the toad being repeatedly bitten as often resorted immediately to the plantain, when the plantain being removed and the toad again bitten, it sought the leaf and not finding it almost instantly died.

Bite of a Rattlesnake Cured in two Hours.—The Petersburg *Express* publishes the following from a reliable correspondent: "A carpenter, while engaged in pulling down an old house, and in removing some of the rotten timbers near the ground, was bitten by a rattlesnake. In a few moments his finger was swollen to four times its natural size, and a red streak commenced running up his hand and wrist. A deadly languor came upon him, and his vision grew dim, clearly indicating that the subtle poison was rapidly approaching the citadel of life. But a remedy was tried merely by way of experiment, which to the surprise of all present, acted like a charm, the component parts of which were, onions, tobacco and salt of equal parts, made into a

poultice and applied to the wound, and at the same time a cord was bound tightly about the wrist. In two hours afterwards he had so far recovered as to be able to resume his work. I knew an old negro who cured a boy that had been bitten by a mad dog, by the same application."

Bee Stings.—First pull out the sting, then bathe the place with ice water, or spirits of hartshorn, or acetate of lead. A paste made of saleratus and water, or a strong solution of potash, or of the carbonate of soda applied immediately and repeated so as to keep the part moist, will allay the pain in a few seconds of time. Those handling bees should keep one of these preparations at hand so as to apply it instantly.

Bites of Venomous Flies.—The venom of fly bites proceeds from the virus the flies absorb in feeding upon putrescent animal matter. If neglected these sometimes prove even fatal. Make a poultice of bread, softened with a strong decoction of mallows, and when it is ready to put upon the bite, pour upon it two teaspoonfuls of the *oxychloride* of sodium, and apply immediately. The cure is effectual.

Bite of Mosquitos, &c.—Oil of pennyroyal, rubbed on the face, hands, and parts exposed, is said to be a preventive for the bite of gnats and mosquitos. It should be properly diluted with some sort of spirits, as if used in its concentrated state, it will cause the skin to smart for a while. This preparation seems to be highly offensive to their gnat and mosquitoships, and they leave in disgust.

TO REMOVE INSECTS FROM THE NOSE AND EARS.

Insects are removed from the nose and ears by spirting in water from the mouth; sweet oil with a syringe is as good, if at hand.

HYDROPHOBIA.

No person who has seen a case of hydrophobia can ever forget the painful scene. Of all the maladies to which human beings are exposed, this is perhaps the most mysterious, and it is surrounded with a dreadful interest. As there is a great deal of popular fallacy afloat respecting it, every item of reliable information and every gleam of light which can be thrown on the subject, deserve to be collected and placed before the public.

Many current ideas on this malady are not only inaccurate, but dangerously wrong. For example: it is commonly believed that ra-

bies in dogs is peculiar to the warm months—the “dog days”—but the dog days have no more to do with rabies than the moon with lunacy. In the veterinary schools of France, the records kept respecting the cause of hydrophobia show that a majority of cases have occurred not in the hottest, but *wettest* months. In April, November and December double the number of cases occurred as compared with July and August. It is also supposed that all mad dogs foam at the mouth, and that they run about snapping at man and beast, manifesting great ferocity. There is only one stage of rabies in dogs in which they foam at the mouth, while healthy dogs foam frequently. Gentle dogs, when affected with rabies, are generally gentle to their masters, but they will then snap at other dogs; it is only the ferocious dog that shows very great fierceness when rabid. It is also a popular belief that dogs attacked with rabies are afraid of water; hence, the name *hydrophobia* (horror of water,) has been given to the malady. This is a misnomer, and the popular notion respecting it is a dangerous error. A burning thirst is one of the characteristic symptoms of rabies in its earlier stages, and when a dog laps water or plunges into it, it is no sign, as some suppose, that he has not the disease. In man, during the latter stages of the disease, there is an undefinable dread of water, and hydrophobia is not inappropriate when applied to him; but in dogs, a dread of water does not show itself in one out of fifty cases.

All who are in charge of a dog may, by a little attention, discover the early symptoms of rabies, and prevent any mischief by sequestering the animal in time. Is he fidgety and sullen? Does he, when first ill, manifest importunate affection? Is he affected with hallucination? Does he exhibit ardent thirst? Does he scratch his ear violently? and does he paw the corners of his mouth without keeping his mouth permanently open? Does he refuse his natural food, and exhibit a depraved appetite? Is he insensible to pain, and his voice strangely altered? Any one of these symptoms should awaken suspicion, and a close observation will soon discover the true state of the case. We advise all our readers to commit this information respecting the symptoms to memory, as it may be of paramount importance at some future period.

The poison of rabie, is not communicated by contagion, but innoculation with the saliva. One mysterious feature connected with this poison, is that after being bitten it may remain in the system for nearly a year before it develops itself. How it thus remains inert is unknown. When a person is bitten by a dog supposed to be mad,

the only safe course to pursue is to cauterize the wound at once. It is a consoling fact that only one out of every three persons bitten by mad dogs have become affected with hydrophobia; still the malady is so terrible and treacherous that every caution should be used at all seasons of the year to prevent it.

Treatment.—Medical authorities agree that the only certain preventive, in case of a bite from a rabid animal, is cutting out and cauterizing the wound. Any one bitten by a dog suspected of rabies, should immediately burn or cut out the affected part. It is best to employ a skillful physician or surgeon to perform this. And it should be done with the least possible delay. While the surgeon is being called, let the wound first be thoroughly washed out with *Aqua Ammonia*, or if that is not at hand, and there is no drug store near where it may be obtained, then use strong ley, or a strong solution of saleratus.

Various antidotes have been recommended, yet we can not vouch for their efficacy. A new cure has been discovered, in England, in the common nitrate of silver. It is said to decompose the saliva, and neutralize the virus. The best form of application is to introduce the solid substance into the wound as soon as possible after the bite.

It is also said that a strong decoction of the bark of the Black Ash tree (that of the root is best,) drank freely as soon as possible, and frequently, is an effectual remedy with man and animal for bite of mad dog; also for bite of the rattlesnake. The bark of the White Ash root to be used in the same manner is said to be equally effective.

The Liepsic, Germany, *Journal* publishes the following antidote for the bite of a mad dog, which, it says, was an exclusive secret with a Saxon forester, but who growing old was unwilling to let it die with him, and therefore procured its publication. He is said to have used it for fifty years, and rescued many human beings and cattle from the fearful death of hydrophobia. Take immediately warm vinegar or tepid water; wash the wound clean therewith, and then dry it; then pour upon the wound a few drops of hydrochloric acid, because mineral acids destroy the poison of the saliva, by which means the latter is neutralized.

A French paper notices a new remedy for hydrophobia—simply hot water. A German veterinary surgeon of Madgeburgh, named Hildebrand, has ascertained that hot water has the effect of decomposing the virus, and if applied in time renders cauterization unnecessary. He says that all that is to be done, after well bathing the part, is to

apply a solution of caustic potash to the wound with a brush, and afterwards annoint it with antimony ointment.

It is claimed that a man was cured of hydrophobia in Italy lately by swallowing vinegar, in mistake for a medicinal potion. A physician at Padua heard of this, and tried the remedy on a patient, he gave him a pint of vinegar in the morning, another at noon, and a third at sunset, which cured him.

TREATMENT OF WOUNDS.

“The wound,” said Lord Bacon, “is not dangerous, unless we poison it with our remedies.” This has a very general, if not a universal application. Nine times out of ten, a wound will heal quicker if done up in its own blood, than in any other way.

First, When the skin is smoothly cut through with any sharp tool, carefully close the wound immediately by wrapping a suitable cloth around it, and be sure to not wet or disturb it for one week, and if it is not a very severe wound it will be entirely cured. This is termed “healing by first intention.”

Second, If the flesh is torn as by a saw or rasp, then be sure to pare off every particle of loose skin and flesh, close the wound by applying a plaster of egg salve made as follows:—beat the yelk of an egg with warm lard until well mixed. If it be a bad wound it will need a careful washing once or twice a day with a very soft rag or sponge, using Castile soap. These wounds need to heal by what is termed “inflammation, suppuration and granulation.”

Third, If the skin is but slightly torn, be sure to remove, as in the preceding case, every particle of loose skin, and you need not tie it up, neither will any trouble be experienced from it, especially if a little ear wax (what every person has at hand) is rubbed over it carefully and thoroughly. I have never found any other dressing equal to this.

Fourth, If the finger or toe nail is torn loose from the flesh by a splinter or anything else, pare the nail till the last separated particle is taken off, and it will soon get well if it is tied up so as to keep the dirt and air from it.

Fifth, If the nail is mashed so as to make a blood blister under it, then carefully cut or bore through the nail into the blister, so as to let out the bruised blood, and it will give relief and soon get well.

Sixth, If the nail grows into the flesh, rasp or scrape the nail all over so as to make it as thin as possible and keep it so until the nail

grows as long as the toe ; having once got the nail on the surface, keep it so by never paring it only even with the end of the toe. While the nail is growing, a wad of cotton or tow may be placed between the toes a little back of the sore part.

The above should be strictly observed.

The most universally safe position, after all stunnings, hurts and wounds, is that of being placed on the back, the head being elevated three or four inches only ; aiding more than any one thing else can do, to equalize and restore the proper circulation of the blood.

To Stop Bleeding.—This is the first thing to be done. The best thing to stop the bleeding of a moderate cut instantly, is to cover it profusely with cobweb, or flour and salt, half and half. It is new to many, yet not to all, that a handful of flour bound on to a wound will prevent the blood from flowing. Thousands of men who have bled to death on the battle field, would have been saved if they had had a handful of flour in their sacks, and bound it on their wound with their handkerchief.

The nap from a wool hat applied to a wound will stop its bleeding.

Take the finest dust of tea, or the scrapings of the inside of tanned leather, and bind it close upon the wound, and blood will soon cease to flow. These articles are at all times accessible, and easy to be obtained. After the blood has ceased to flow, laudanum may be advantageously applied to the wound. Due regard to these instructions will save agitation of mind, and running for the surgeon, who would probably make no better prescription, if present.

Punk, found in old trees, and obtained by splitting the wood that has it in, and peeling it off with the fingers, when rubbed up with the hand, and applied to wounds, will stop the blood immediately, and without pain or irritation.

Take dried and pulverized leaves of common tall wild sun-flower—*helianthus giganteus*. Sprinkle a small quantity into a wound, and the blood will cease to flow almost instantly, unless an artery is severed. The plant grows to the height of six or eight feet. Continued pressure with a bunch of lint or cotton, a piece of linen, or a soft sponge frequently checks bleeding. Cold water applied freely is often sufficient. A solution of salt or alum in water is perhaps better. A decoction of white oak bark is also useful.

Four or five drops of perchloride of iron will check completely the flow of blood from all except the largest arteries ; half a teaspoonful will arrest even their bleeding.

If from any wound the blood spirts out in jets, instead of a steady

stream, be spry, or the person will be dead in a few minutes, because an artery is severed, and that takes the blood directly from the fountain of life. To stop this instantly, tie a handkerchief or other cloth very loosely *BETWEEN the wound and the heart!* put a stick between the handkerchief and the skin, twist it round until the bleeding ceases, and keep it thus until the doctor comes; if in a position where the handkerchief cannot be used, press the thumb on a spot near the wound, *between* the wound and the heart; increase the pressure until the bleeding ceases, but do not lessen that pressure for an instant, until the physician arrives, so as to glue up the wound by the coagulation or hardening of the cooling blood.

If the blood flows in a slow, regular stream, a vein has been pierced, and the handkerchief must be applied on the other side of the wound from the heart; that is, *below* the wound, and there is no need of so great hurry.

A Sovereign Remedy for Wounds is recommended in the following as a certain means of allaying inflammation, extracting the poisonous effect of iron, steel, etc., preventing lock-jaw, mortification, and the necessity for amputation. Saturate small pieces of rags of woolen material, (raveling of hose or flannel,) with grease, (lard or sweet oil,) which place upon ignited wood, coal, or charcoal, in an iron kettle, so that they smoke without blazing. Hold the wound over the smoke if convenient, covering the whole with a blanket to condense the smoke upon the wound. The kettle should be in or near a chimney, or the windows open at the top to prevent the deadly effect of inhaling the smoke.

"I cut my foot with an ax," says a correspondent of the *Country Gentleman*, "and the lady of the house, seizing the foot while it was yet bleeding freely, held it over a pan containing smoking taglocks. In a few minutes the bleeding stopped, and the smoke was removed and a bandage applied to protect it from accidental blows. The wound never suppurated, and consequently never pained me. I have seen the remedy tried in many similar cases, and always with the same result. Let the reader bear in mind that no liniment or salve, drawing or healing, should be applied. You have merely to smoke the wound well and nature will do the rest. I suppose the smoke of burning wood would produce the same results, but it would not be so manageable. There is a principle in the smoke of wool which, when applied to the flesh coagulates the albumen, thus rendering it unsusceptible of putrefaction. The same principle stops bleeding by coagulating

the blood. It promotes healing, and may be applied with decided benefit to all ulcers, wounds and cutaneous diseases."

Tobacco Smoke as a Remedy.—The *Louisiana Baptist* recommends tobacco smoke as a highly valuable remedial agent in the treatment of flesh wounds, lock-jaw, etc., the smoke to be blown upon the affected part through a pipe stem. Many persons are aware of the healing virtues of tobacco when applied moist to a wound.

Coal Oil for Wounds.—An assistant surgeon in the army writing from James River says, that what water is to a wound in an inflamed state, coal oil is in a suppurating state—it dispels flies, expels vermin, sweetens the wound, and promotes a healthy granulation. He states that he has seen two patients, whose wounds had been dressed with it, asleep before he was through with the third. This is a remedy easily applied in our hospitals. If it serves to keep away flies it will add materially to the comfort of the wounded as well as their cure.

Gangrene.—An ointment composed of equal parts of lard and extract of logwood, is said to have been employed with extraordinary success in removing fetid odors, and bringing about healthy action in sloughing and gangrenous wounds. Recent demonstrations have shown oxygen to be an effectual remedy for gangrene.

A Good Healing Ointment for Wounds is made as follows: Take a quarter of an ounce of white wax, and half an ounce of spermaceti, and put them in a small basin by the side of the fire, till the wax and spermaceti are dissolved. When cold, the ointment is ready for use. This is an article which it is much better to make than to purchase. When you make it yourself, you know that it has no irritating or inferior material in it.

To Unite Deep Wounds an adhesive plaster may be used in place of stitches, made of white resin, mutton tallow and beeswax, in the proportion of fourteen ounces of the former to one ounce each of the latter, melted together, poured into cold water, then pulled and worked, and rolled into sticks.

HEMORRHAGE OF THE LUNGS.

To stop hemorrhage of the lungs, stir *quickly* a large tablespoonful of *fine* salt into half a glass of cold water, and once in every five minutes drink a swallow. At the same time cool the chest, with applications of cloths wrung out of cold water, and keep quiet, breathing regularly, and as gently as possible. An erect posture is gener-

ally preferable. A teaspoonful of dry salt taken occasionally is sometimes sufficient. Bathing the feet in warm water, and sponging the whole body with either warm or cold water, adding gentle friction, are beneficial.

NOSE BLEEDING.

The best preventive is keeping the feet warm and head cool. Bathing the feet in warm water is a remedy. Applying cold water to the back of the neck, or a cold pebble just taken from the bottom of a stream, at the same time snuffing water up the nostrils, is another remedy. Fill the nostril full, as far up as possible, with very dry, hard smoked beef grated to a fine powder is a never failing remedy, for the secret of which a gentleman in New York paid five hundred dollars.

It is said that, extraordinary as it may appear, by placing a small roll of paper or muslin above the front teeth, under the upper lip and pressing hard on the same, bleeding from the nose will certainly be arrested; also that if a piece of paper be put in the mouth and chewed rapidly it will stop the bleeding. Doubtless any substance would answer the same purpose as paper.

Dr. Negler, a French surgeon, says that the simple elevation of a person's arm will stop bleeding at the nose. He explains the fact physically, and declares it a positive remedy. It is certainly easy of trial.

SUN STROKE.

Avoid hearty meals and spirituous liquors before being exposed to a hot sun. Then sun stroke may be prevented by wearing a silk handkerchief in the hat, a few green leaves, a dampened sponge, or a white linen hood hat-cover, extending like a cap over the neck and shoulders. Or retire to the shade frequently and keep the head wet with cold water as much as possible. The remedy for sun stroke is to restore the equilibrium of the circulation as soon as possible by immediately loosening the clothes about the neck, removing the patient into a cool shade, pouring cold water on the head, a little and gently at first, gradually increasing it, and bathing the feet in water as hot as can be borne, or if that cannot be had, whipping the soles of the feet smartly with the sole of the shoe, to determine the blood in that direction.

FAINTING.

If a man faint away, says *Hall's Journal of Health*, instead of yelling out like a savage, or running to him to lift him up, lay him at full length, on his back, on the floor, loosen the clothing, push the crowd away so as to allow the air to reach him, and let him alone. Dashing water over a person in a simple fainting fit, is a barbarity. The philosophy of a fainting fit is, that the heart fails to send the proper supply of blood to the brain; if the person is erect, that blood has to be thrown up hill; but if lying down, it has to be projected horizontally, which requires less power, as is apparent.

Apply spirits of hartshorn or camphor to the nose.

BRUISES AND SPRAINS.

For bruises, mix beef's gall and whisky, equal parts, and apply it freely, and it will not only kill the pain, but cause it to heal speedily.

For sprains, put the white of an egg into a saucer, stir it with a piece of alum until it becomes a thick jelly; apply a portion of this on a piece of soft linen rag, large enough to cover the sprained part; change it for a fresh one as often as it becomes warm or dry; the limb should be kept in a horizontal position by placing it in a chair. There is but one thing that is better and that is simply cold water.

The means of treating sprain, recently revived by Mr. Gerard, is frequently had recourse to by M. Nelaton, the eminent surgeon of the Clinique Hospital, Paris, with complete success, both in recent and old standing sprains. A case recently presented itself, in which a man sprained his ankle while leaping. Cold water was immediately applied, but he remained unable to walk for three weeks, when he came under Nelaton's care. It having been ascertained to be an example of simple sprain, one of the *internes* slid his fingers under the foot, and having greased the two thumbs, pressed these successively with increasing force over the painful parts for about a quarter of an hour. The application was repeated several times, and in the course of the day the patient began to walk, and the next day left the hospital. This is a most simple cure for a very frequent accident, and can be applied by the most inexperienced.

DROWNING.

Let every reader become perfectly familiar with the following means of resuscitation. In every case of apparent drowning:

1. Send instantly for a medical man, and while he is coming, place the patient in the open air, unless the weather is very cold; expose the face and chest especially to the breeze.

2. *To clear the throat*—Place the patient gently face downward, with one wrist under the forehead, in which position all fluids will escape by the mouth, and the tongue itself will fall forward, leaving the entrance into the windpipe free. Assist this operation by wiping and cleansing the mouth. If there be breathing, wait and watch; if not, or if it fail, then,

3. *To excite respiration*—Turn the patient well and instantly on the side, and

4. Excite the nostrils with snuff, hartshorn, volatile salts, or the throat with a feather, etc., and dash cold water on the face, previously rubbed warm. If there be no success, lose not a moment, but instantly begin,

5. *To imitate respiration*—Replace the patient on his face, raising and supporting the chest well on a folded coat or other article of dress.

6. Turn the body very gently on the side and a little beyond, and then briskly on the face, alternately; repeating these measures deliberately, efficiently, and perseveringly, about fifteen times in the minute, or every four seconds, occasionally varying the side. [By placing the patient on the chest, its cavity is compressed by the weight of the body, and expiration takes place; when turned on the side, this pressure is removed, and inspiration occurs.]

7. On each occasion that the body is replaced on the face, make uniform but efficient pressure with brisk movement on the back, between and below the shoulder-blades or bones, on each side, removing the pressure immediately before turning the body on the side.

8. After respiration has been restored, promote the warmth of the body by the application of hot flannels, bottles or bladders of hot water, heated bricks, etc., to the stomach, the arm-pits, between the thighs, and to the soles of the feet, to induce circulation and warmth.

9. During the whole time do not cease to rub the limbs upward, with firm, grasping pressure, and with energy, using handkerchiefs, flannels, etc.

10. Let the limbs be thus warmed and dried, and then clothed, the bystanders supplying the requisite garments.

Cautions.—1. Send quickly for medical assistance and for dry clothing. 2. Avoid all rough usage and turning the body on the back. 3. Under no circumstances hold up the body by the feet; 4. Nor roll the body on casks; 5. Nor rub the body with salts or spirits; 6. Nor inject tobacco smoke or infusion of tobacco. 7. Avoid the continuous warm bath. 8. Be particularly careful, in every case, to prevent persons crowding around the body.

General Observations.—On the restoration of life, a teaspoonful of warm water should be given; and then, if the power of swallowing has returned, small quantities of wine or brandy and water, warm, or coffee. The patient should be kept in bed, and a disposition to sleep encouraged. The treatment recommended should be persevered in for a considerable time, as it is an erroneous opinion that persons are irrecoverable because life does not soon make its appearance, cases having been successfully treated after persevering several hours.

In endeavoring to rescue a drowning person, *take him by the arm* from behind, between the elbow and the shoulder. A good swimmer can, by “treading water,” catch both arms thus, and keep the person from going under for an hour, the very struggles of the victim aiding in buoying him up, for his feet then are mainly engaged, and he also, to that extent, “treads water.” If a drowning person is seized anywhere else, he is pretty sure to clutch with a death-grip, and both perish.

Any one can remain for hours in water, whether he can swim or not, by clasping his hands behind him, throwing himself on his back, so as to allow only his nose to be out of the water; a very little presence of mind, force of will, and confidence, will enable any one to assume this position.

LIGHTNING STROKE.

In a thunder storm you are safer wet than dry, and safer amongst tall, dry, and rotten or mechanical substances than alone, provided you are not very close to them. Within doors you are safest on a feather bed, drawn out from the wall, and away from the chimney, also from the window. If sitting upon a chair it is safest to be in the middle of the room with your feet on the rounds. A dark room is safer than a light one. But all precautions may fail. People are nowhere

more safe than in the street. The chimney-tops are their lightning rods.

In a case of apparent death from lightning, dash cold water upon the head and along the back the whole length of the body. Do this immediately and almost continuously for considerable time.

ANTIDOTE TO CHLOROFORM.

A distinguished physician in Paris, Dr. Robert De Lambelle, announces that a shock of electricity given a patient dying from the effects of chloroform, immediately counteracts its influence, and restores the sufferer to life. Another Parisian doctor claims to have discovered that brandy or rum is the best antidote for chloroform, and that it will at once counteract the effects of an overdose.

AIR-DAMP.

A workman descending a well which had been excavated, was overpowered by the noxious gas, and became insensible. A light was let down, and as immediately extinguished from the same cause, when one of his comrades proposed to descend to his assistance, but was prevented by the foreman, who wisely remarked that one man could be rescued more easily than a couple. As speedily as possible he procured a quantity of unslacked lime, which he cast into the pit, and then dashed down a pail of water. The good effect was evident in a brief space of time, for a pull at the rope was felt, and the man was drawn to the surface, having fortunately escaped any ill consequences from the remedy which had been used to dispel the carbonic acid gas.

ESCAPING FROM FIRE.

Human life has been often thrown away from persons not taking the precaution to accustom their minds to dwell at times on the proper method of acting in emergencies; from want of this, many rush into the very jaws of death, when a single moment's calm reflection would have pointed out a certain and easy means of escape. It is the more necessary to fix in the mind a general course of action in case of being in a house while it is on fire, since the most dangerous conflagrations occur at dead of night, and at the moment of being aroused from a sound sleep the brain is apt to become too confused to direct the bodily movements with any kind of appropriateness, without some previous

preparation in the manner contained herein. In case the premises are on fire :

1. Be careful to acquaint yourself with the best means of exit from the house, both at the top and bottom.

2. On the first alarm, reflect before you act. If in bed at the time, wrap yourself in a blanket or bedside carpet. Open no more doors than are absolutely necessary, and shut every door after you.

3. There is always from eight to twelve inches of pure air close to the ground ; if you can not, therefore, walk upright through the smoke, drop on your hands and knees, and thus progress. A wetted silk handkerchief, a piece of flannel, or a worsted stocking, drawn over the face, permits breathing, and, to a great extent, excludes the smoke.

4. If you can neither make your way upward nor downward, get into a front room ; if there is a family, see that they are all collected here, and keep the door closed as much as possible, for remember that smoke always follows a draught, and fire always rushes after smoke.

5. On no account throw yourself, or allow others to throw themselves, from the window. If no assistance is at hand, and you are in extremity, tie the sheets together, having fastened one side to some heavy piece of furniture, and let down the women and children one by one, by tying the end of the line of sheets around the waist, and lowering them through the window that is over the door, rather than one that is over the area. You can easily let yourself down after the helpless are saved.

6. If a woman's clothes catch fire, let her instantly roll herself over and over on the ground. If a man be present, let him throw her down and do the like, and then wrap her up in a rug, coat, or the first *woolen* thing that is at hand.

Of the preceding suggestions, there are two which cannot be too deeply engraven on the mind, that the air is comparatively pure within a foot of the floor, and that any wetted silk or woolen texture thrown over the face excludes smoke to a great extent ; it is often the case that the sleeper is awakened by the suffocating effects of the smoke, and the very first effort should be to get rid of it, so as to give time to compose the mind, and make some muscular effort to escape.

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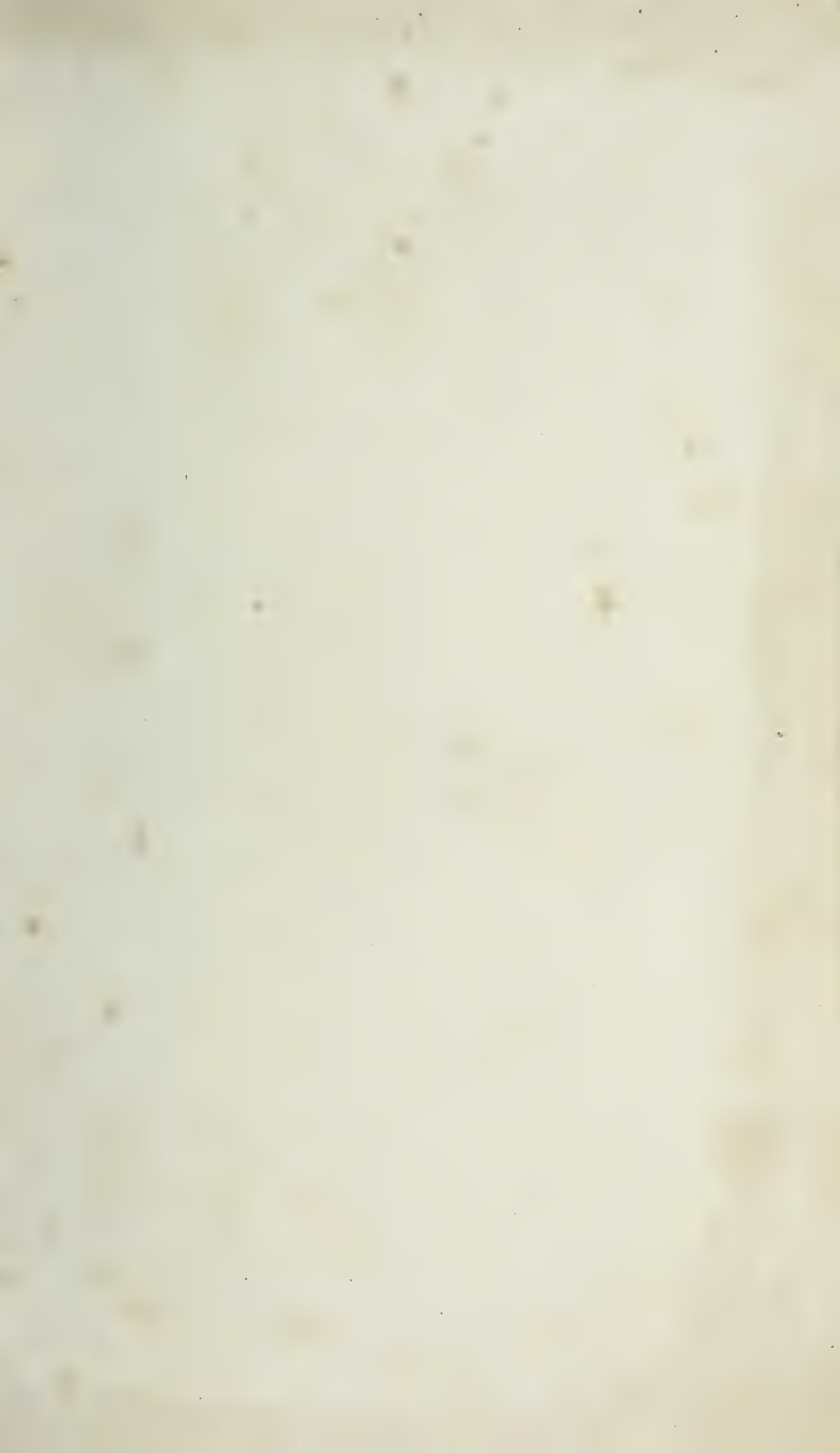
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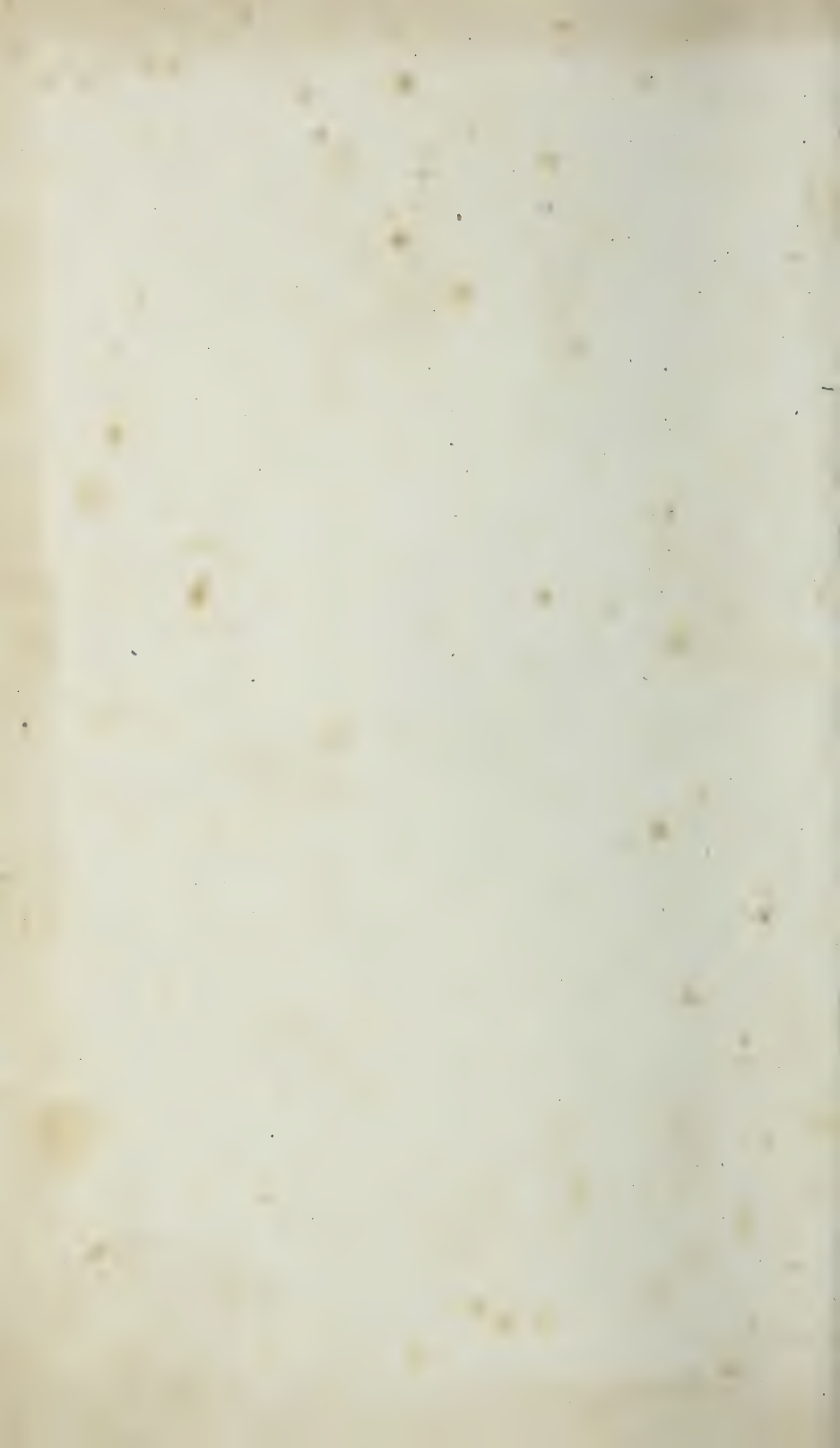
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